

Government of Northern Rhodesia.

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# MEDICAL REPORT

ON

Health and Sanitary Conditions  
for the Year 1933.

LIVINGSTONE :  
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1934.









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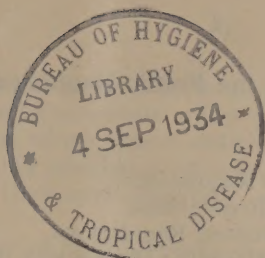
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## NORTHERN RHODESIA.

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# Medical Report on Health and Sanitary Conditions for the Year 1933.

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### SECTION I.

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#### ADMINISTRATION.

##### (a) Staff.

##### EUROPEAN.

The authorised staff is given in Table I at the end of this Report. The chief changes during the year are as below.

##### *Promotions.*

Dr. A. Kinghorn, Director of Medical Services.

##### *Appointments.*

Miss W. K. de Meillon, Nursing Sister.  
Miss Z. P. Ross, Nursing Sister.  
Miss E. M. Whitaker, Nursing Sister.  
Miss E. E. M. Brown, Nursing Sister.  
Miss O. Rowe, Nursing Sister.  
Mrs. E. M. Paul, Welfare Worker (Temporary).  
Dr. F. A. Thomson, Welfare Worker (Temporary).  
Miss O. M. Bulterman, Attendant, Female Wards.

##### *Retirements.*

Dr. P. H. Ward, Director of Medical and Sanitary Services.  
Mrs. E. M. Cronin, Nursing Sister.  
Miss M. A. Bradford, Nursing Sister (Resignation).  
Miss L. Woolley, Nursing Sister (Resignation).  
Miss K. du Heaume, Nursing Sister (Resignation).  
Miss J. F. Scales, Nursing Sister (Resignation).  
Miss B. E. Greenwell, Attendant, Female Wards (Termination, temporary appointment).  
Mrs. E. M. Paul, Welfare Worker (Termination, temporary appointment).

##### *Transfers.*

Dr. H. S. de Boer, M.C., Deputy Director of Medical Services, to Uganda.  
Dr. N. M. MacLennan, Senior Health Officer, to Palestine.  
Dr. R. A. Newsom, Medical Officer, to Nyasaland.  
Miss W. C. S. Matthews, Nursing Sister, to Gold Coast.

Reference was made in the Report for 1932 to the fact that Northern Rhodesia was feeling the effects of the world-wide economic depression and to consequent restrictions in staff which were necessitated by these conditions. It became apparent early in 1933 that the finances of the country had been much more adversely affected than had been anticipated and that further sacrifices in staff and services would be required. Accordingly, the Senior Health Officer was allowed to accept a transfer to Palestine, one Medical Officer a transfer to Nyasaland and the retirement of a second accelerated slightly. The department unfortunately also lost the services of the Deputy Director at the end of the year through his acceptance of a transfer to Uganda.



## (b) Ordinances and Regulations affecting the Public Health enacted during 1933.

Dangerous Drugs (Amendment) Ordinance.  
 Public Health (Building) Regulations.  
 Public Health (Minor Township Building) Regulations.  
 Public Health (Sale of Bakery Products) Regulations.  
 Public Health (Sale of Ice and Aerated Waters) Regulations.  
 Public Health (Tea Rooms, Restaurants, Boarding Houses and Hotels) Regulations.

## (c) Finance.

## CALENDAR YEAR 1933.

The following figures have been provided by the Treasury :

Total Revenue of Colony	...	...	...	...	...	...	...	...	...	£718,283	0	4
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*Health Vote Revenue.*

Hospital Fees	...	...	...	...	...	...	...	...	...	£4,737	12	1
Medical Subsidies	...	...	...	...	...	...	...	...	...	345	13	8
Sale of Drugs and Vaccines	...	...	...	...	...	...	...	...	...	81	8	2
										£5,164	13	11

*Expenditure.*

Personal Emoluments	...	...	...	...	...	...	...	...	...	£36,278	3	0
Other charges	...	...	...	...	...	...	...	...	...	£26,750	15	8
										£63,028	18	8

Health Vote Expenditure — 8.77% of total revenue of Colony.

Comparative figures for the past four years are given in the following table :

	1930	1931	1932	1933
Expenditure, Health	£59,009	£67,711	£65,809	£63,029
Total Revenue, Colony	£785,823	£859,489	£649,538	£718,283
% Health expenditure to total revenue	7.51	7.86	10.13	8.77

## SECTION II.

## PUBLIC HEALTH.

## General Remarks.

Owing to the financial position it was impossible, during the year, to do much more than carry on existing services.

2. The general health of both sections of the community may be described as good and no epidemic disease of great importance was recorded.

3. Most District Officers, in their tour reports have commented on the indications that an awakening sense of the importance of better housing and village sanitation are becoming apparent amongst the natives. Better huts are to be seen, even to the extent of several-roomed brick houses with doors and windows; the importance of protecting water supplies has been realised in a few areas; and in others more enlightened ideas on the disposal of human waste material are to be seen. It cannot be stated that these improvements have yet extended to any great degree, but they go to show that some of the natives have initiative and an appreciation of the value of more hygienic surroundings. Progress, under present conditions, is bound to be slow but it is undoubtedly proceeding.

4. During the year the Deputy Director, Dr. H. S. de Boer, inspected all the Government stations and missions in the greater part of North-Eastern and a portion of North-Western Rhodesia and submitted a most valuable report on European and native housing, prisons, water supplies, village sanitation and other relevant matters, and his recommendations are being implemented as quickly as funds permit. The co-operation of district officials, the Native Education department and missionaries is being enlisted to disseminate a knowledge of hygiene and sanitation in the villages.

5. Considerable improvements were made as regards the unemployed, and they did not present the same problem as regards health as they did in the previous year. For this the combined efforts of the various Welfare societies and of the district unemployment committees under the general direction of the Unemployment Commissioner have been responsible. A number were repatriated to their domiciles of origin, others were found employment either on the mines or on works of public utility and rations issued to all who were unable to find work.



6. Despite the necessity for economy, Government paid grants-in-aid of medical work to various missions on the same scale as in former years. It is impossible to exaggerate the value of the assistance rendered by these societies which almost entirely work amongst the natives in outlying areas to which it has not yet been found possible to extend Government health services. In a later section of this report some statistics of their work are given.

7. The seasonal occurrence of certain groups of diseases is a definite fact noted by all medical officers. Chest complaints are observed most frequently at the breaks between the dry and wet seasons; intestinal disorders at the commencement of the rains when the dry season's collection of faecal material deposited on the banks of streams is washed into the water; and conjunctivitis during the dry season when high daily winds are blowing.

8. The problem of the provision of medical services for the native population at large is one that presents many difficulties. The extent of the territory to be served is enormous and the revenue of the country small. It is extremely doubtful if the Territory will be able to afford for many years to come, if ever, a European medical service commensurate with its size, and dependance will, therefore, have to be placed on the development of the rural dispensary system. Before this can be contemplated, however, a supply of educated and trained orderlies will have to be available and the institution of the training school envisaged in 1930 will have to be undertaken. This is a matter of the greatest importance, and one which should receive sympathetic consideration at the earliest possible moment.

9. It is probable that the cost of the extension would fall almost completely on Government for many years to come as the funds standing to the credit of most of the reserves are very small and are likely to remain so. In one or two instances it might be possible to ask reserve funds to meet the cost, as is done in some of the East African Colonies, but only in these isolated cases. The natives have not as yet the requisite knowledge to grow or produce any crops or manufactures which would stand the cost of transport and it is safe to say that the only tangible asset possessed by the vast majority is their ability to perform manual labour. The market for this is a restricted one and the opportunities for accumulating surplus savings from which to pay for increased amenities are very limited.

10. Reference should be made to the position of preventive medicine though this is anticipating experience gained up-to-date in 1934. It has been pointed out that urgent necessity compelled reductions in staff in 1933 and the decision was reached that this could best be effected by requiring medical officers to undertake the duties of medical officers of health and to effect economies at the expense of the existing sanitation branch. This decision was received with considerable concern and the disadvantages involved were pointed out at the time. Until the end of the year, however, when, as stated, Dr. de Boer accepted a transfer to Uganda, Government possessed a highly competent adviser on public health and work proceeded satisfactorily. After his departure, however, the position was changed and it is apparent that some change of policy is required. It is not suggested that an elaborate staff to deal exclusively with preventive medicine should be reappointed immediately but it is considered that provision should be made in the estimates for next year for the appointment of one full-time medical officer of health to advise Government on public health questions and to supervise and co-ordinate the work which is being done. The medical officers and health inspectors have done and are doing most valuable work but it is a matter of great difficulty for the former to discharge efficiently the duties of both offices and under existing conditions in this country clinical duties have to take precedence.

## (1) General Diseases.

No special comments are called for. One thousand three hundred and forty-nine European in-patients were treated in Government hospitals, with 30 deaths. This shows a slight decrease over the 1932 figures. On the other hand, the number of native in-patients increased from 7,046 in 1932 to 8,376 in 1933, with 362 and 325 deaths respectively. The increase, though small, is gratifying as indicating the increasing tendency of natives to seek hospital treatment.

2. Comparative figures for the past five years are given below:

EUROPEANS				NATIVES.			
			In-patients.	Deaths.			
1929 ...	...	...	1,078	21	8,874		446
1930 ...	...	...	1,151	29	7,272		471
1931 ...	...	...	1,525	44	8,603		436
1932 ...	...	...	1,442	37	7,046		362
1933 ...	...	...	1,349	30	8,376		325

Similar figures of the percentages of deaths to cases treated are:

		Europeans.	Natives.
1929 ...		1.95	5.03
1930 ...		2.50	6.50
1931 ...		1.50	5.06
1932 ...		2.50	5.13
1933 ...		2.22	3.70



3. The following table shows the total cases treated in native hospitals, number of deaths and mortality rates for the past three years :

STATION.	CASES TREATED.			DEATHS.			MORTALITY PER CENT.		
	1931	1932	1933	1931	1932	1933	1931	1932	1933
Livingstone ... ..	1,268	1,116	1,194	145	115	72	11.43	10.31	6.03
Choma ... ..	766	304	240	23	11	9	3.02	3.61	2.75
Mazabuka ... ..	678	619	605	24	19	9	3.54	3.06	1.48
Lusaka ... ..	577	663	874	45	61	67	7.78	9.20	7.66
Broken Hill ... ..	1,407	788	1,070	95	54	57	6.15	6.85	5.32
Ndola ... ..	551	643	968	34	32	42	6.17	4.97	4.33
Fort Jameson ... ..	453	349	393	26	28	22	5.75	8.02	5.59
Kasama ... ..	344	371	475	6	6	11	1.74	1.61	2.31
Fort Rosebery ... ..	446	330	426	4	10	6	.89	3.03	1.40
Mongu ... ..	808	1,189	1,147	14	18	19	1.74	1.51	1.65
Balovale ... ..	288	674	984	9	9	11	3.12	1.33	1.11

It will be noticed that the mortality rates are almost uniformly lower in 1933 than in former years.

## (2) Communicable Diseases.

### (a) MOSQUITO OR INSECT-BORNE.

#### *Malaria and Blackwater Fever.*

There were only three European deaths from malaria, while the number from blackwater is practically the same as in former years, namely 20. Comparative figures are :

Year.	Population.	Deaths : Malaria.	Deaths : Blackwater.	Rate per 1,000.
1930 ... ..	12,000	25	20	3.75
1931 ... ..	13,846	22	19	2.96
1932 ... ..	10,553	17	22	3.69
1933 ... ..	11,278	3	20	2.03

2. The distribution of deaths from these two diseases for the past three years is as follows :

Province.		Deaths : Malaria.			Deaths : Blackwater.		
		1931	1932	1933	1931	1932	1933
Luangwa (including mining area)	...	18	12	2	13	9	13
Batoka ... ..	...	3	2	—	3	4	1
Kafue ... ..	...	1	3	—	3	6	5
Rest of Territory	...	—	—	1	—	3	1
<i>Total</i>	...	22	17	3	19	22	20
		==	==	==	==	==	==

It will be noted that the greatest number of deaths occurred, as was the case last year, in the Luangwa and Kafue Provinces in the former of which the mining area is situated and in both of which the largest concentrations of unemployed are found.

3. It is amongst these sections of the public that the greatest carelessness regarding malaria prophylaxis is found and the fact that the deaths from blackwater occurred chiefly amongst the poorer classes is corroborative evidence of this.

4. Reference has been made in these reports from year to year, almost *ad nauseam*, to the question of personal prophylaxis against malaria, and consequently blackwater, by the regular use of quinine but while the older practitioners continue to urge its use, the tendency appears to be for more and more to neglect it. It is recognised that two schools of thought exist and that modern ideas on the subject are that measures calculated to free a community from mosquitoes are more to the point than reliance on personal prophylaxis ; but in this country at present it is only in small and restricted areas, comparatively speaking, that the ideal can be realised. An approximation to the ideal appears to be being realised in the mine townships but in these control is absolutely centralised and the companies have spent very large sums of money on anti-malarial measures of every description. The amount the various municipalities and Government have been able to allocate to the work has been comparatively small and the results obtained, though striking, are not comparable with those in the mining townships. It is unfortunate, therefore, that the practice obtaining in these of not using quinine as a prophylactic has spread to surrounding regions in which anti-malarial measures are not so far advanced and in which anophelines exist in juxtaposition to an abundant reservoir of the disease.



5. Table showing death rates per 1,000 from malaria, blackwater fever, total climatic and total all causes for the past 20 years is subjoined :

Year	Total Climatic	Blackwater Fever	Malaria	Total All Causes
1913-14 ... ..	8.69	6.08	2.60	18.70
1914-15 ... ..	6.60	5.70	.40	20.40
1915-16 ... ..	9.28	4.64	1.85	18.11
1916-17 ... ..	5.08	3.23	.92	18.93
1917-18 ... ..	3.75	2.80	.83	17.80
1919 ... ..	5.20	2.00	2.40	28.40
1920 ... ..	2.80	2.40	—	12.80
1921 ... ..	5.80	2.70	1.80	15.40
1922 ... ..	4.12	2.75	.82	14.30
1923 ... ..	5.20	3.40	1.05	13.42
1924 ... ..	2.70	1.80	.45	9.04
1925 ... ..	2.82	1.52	1.30	13.70
1926 ... ..	2.86	2.14	.71	11.10
1927 ... ..	2.88	1.23	1.10	9.89
1928 ... ..	3.58	2.65	.53	12.87
1929 ... ..	1.20	1.00	1.10	9.32
1930 ... ..	4.00	1.66	2.08	13.58
1931 ... ..	3.32	1.37	1.59	15.16
1932 ... ..	3.69	2.08	1.61	11.08
1933 ... ..	2.03	1.77	.26	9.13

6. The malaria and blackwater fever admissions to Government European hospitals, with deaths, for the past five years, are shown in the following table.

Station	1929		1930		1931		1932		1933	
	Malaria	Black- water Fever	Malaria	Black- water Fever	Malaria	Black- water Fever	Malaria	Black- water Fever	Malaria	Black- water Fever
Livingstone ...	166 (1)	2 (1)	175 (3)	7 (3)	216 (2)	4 (2)	124	7 (4)	79	5
Lusaka ...	69	2	93 (2)	1	88	5 (2)	111	7 (3)	120	—
Broken Hill ...	87	—	97	1	133 (1)	4 (1)	82 (1)	7 (2)	53	5 (1)
Ndola ...	—	—	—	—	41	1	70 (2)	—	87	4 (1)
Fort Jameson ...	7	1	11	—	15	1	11	—	3	—
Kasama ...	1	—	7	—	6	—	7	1	3	—
Mongu ...	—	—	—	—	1	—	—	—	—	—
Totals ...	330 (1)	5 (1)	383 (5)	9 (3)	500 (3)	15 (5)	405 (3)	22 (9)	345	14 (2)

NOTE.—Brackets indicate fatal cases.

#### *Sleeping Sickness.*

Eleven cases of this disease, including one European, were reported. They appeared sporadically and the indications are that it is not showing any tendency to increase.

2. In recent years the experiment of encouraging natives residing in sleeping sickness areas to leave their isolated villages and form large and closely settled communities has been tried, and the results have been excellent. The cutting down of the bush and the formation of large cultivated areas has resulted in a marked diminution of the number of tsetse flies found with a consequent drop in the incidence of the disease.

#### (b) INFECTIOUS DISEASES.

Notifications were as follows :

Diseases	Europeans	Asiatics	Natives
Blackwater ... ..	28	2	—
Relapsing Fever ... ..	3	4	64
Cerebro-spinal Meningitis ... ..	—	—	11
Trypanosomiasis ... ..	1	—	10
Typhoid Fever ... ..	7	—	10
Paratyphoid ... ..	2	—	1
Tuberculosis—Pulmonary... ..	1	—	26
Miliary ... ..	—	—	2
Spinal ... ..	—	—	1
Unclassified ... ..	2	—	13
Puerperal Fever ... ..	—	—	2
Measles ... ..	14	—	75
Dysentery—Bacillary ... ..	6	—	10
Amoebic ... ..	34	—	31
Unclassified ... ..	3	—	79
Rubella ... ..	2	—	—
Diphtheria ... ..	4	—	—
Tropical Ulcers ... ..	—	—	322
Anthrax ... ..	—	—	1



(b) INFECTIOUS DISEASES.—*continued.*

Diseases					Europeans	Asiatics	Natives
Leprosy	...	...	...	...	—	—	129
Yaws	...	...	...	...	—	—	112
Varicella	...	...	...	...	54	—	318
Scarlet Fever	...	...	...	...	3	—	1
Whooping Cough	...	...	...	...	28	—	76
Variola	...	...	...	...	—	—	14
Influenza	...	...	...	...	—	—	25
Pneumonia—Broncho	...	...	...	...	—	—	10
Lobar	...	...	...	...	—	—	5
Mumps	...	...	...	...	3	—	3
Infantile Paralysis	...	...	...	...	—	—	2
Smallpox	...	...	...	...	—	—	165

*Enteric Group.*

The hospital incidence of this group is given in the table below :

	1931				1932				1933			
	Europeans		Natives		Europeans		Natives		Europeans		Natives	
	Cases	D'ths	Cases	D'ths	Cases	D'ths	Cases	D'ths	Cases	D'ths	Cases	D'ths
Livingstone	...	5	2	8	3	5	—	—	5	2	31	5
Lusaka	...	3	1	1	1	—	—	—	—	—	—	—
Mazabuka	...	—	—	1	—	—	1	1	—	—	—	—
Broken Hill	...	5	—	12	4	12	1	3	1	2	1	1
Ndola	...	—	—	1	1	1	—	2	2	1	—	—

Other communicable diseases as well as those of the helminthic group are dealt with in Section III.

## VITAL STATISTICS.

## (1) General Native Population.

The estimated native population of the Territory at the end of 1933 was 1,371,213, a decrease of 0.83 per cent. as compared with the figure for the previous year. For the past five years the figures are :

1929	1930	1931	1932	1933
1,298,619	1,331,231	1,372,235	1,382,705	1,371,213

2. As has been explained previously, no system of registration of births and deaths amongst natives is in force and consequently estimates of population must be accepted with some reserve. The Secretary of Native Affairs is of the opinion that the decrease is due to miscalculation of women and children in former years, the deletion from the registers of men long absent from their homes, and to emigration into Belgian and Portuguese territories of natives living in close proximity to the borders.

3. In 449 villages with a total population of 44,077, the number of births during the year was 2,511, divided as to sex into 1,210 males and 1,301 females. This gives a crude birth rate of 56.9 per thousand which may be compared with the 1932 figure of 60.2 in a population of 43,122 and the 1931 figure of 59.6 in a population of 47,314.

4. In the same group of villages 449 infants under the age of one and 248 between one and two died during the year, giving a mortality rate on the percentage of births of 27.7. For the past five years the figures are :

1929	1930	1931	1932	1933
38%	34%	33.7%	38.4%	27.7%

## (2) General European Population.

At the end of 1933 the European population was 11,278, an increase of 725 or 6.87 per cent. over the figure for 1932. To a large extent the increase may be ascribed to the re-opening of Mufulira Mine, and the somewhat greater activity in the mining area generally.

Comparative population figures for the past five years are :

1929	1930	1931	1932	1933
9,981	12,000	13,846	10,553	11,278

2. During the year 318 births were registered, 173 males and 143 females. The crude birth rate is thus 33.78 per thousand. The figures for the past four years are :

1930	1931	1932	1933
22.75	24.05	31.46	33.78

3. There were 103 deaths, giving a rate of 9.13 per thousand, which is the lowest figure recorded since 1924 when the figure was 9.08 per thousand, the lowest in the history of the Territory.

1929	1930	1931	1932	1933
9.32	13.58	15.16	11.08	9.13



It is of interest to note that in Southern Rhodesia the death rate this year was also exceptionally low—8.5 per thousand.

4. The deaths according to age periods during the past five years are shown in the following table while the causes of death are detailed in the succeeding one. Blackwater fever was again responsible for the greatest number, viz., 20 or 19.41 per cent. of the total. On the other hand there was a marked decrease in the deaths ascribed to malaria and only three due to this cause were registered. Pneumonia and broncho-pneumonia accounted for eight, while the group of accidental and self-inflicted deaths numbered fourteen. Malignant diseases were responsible for four.

EUROPEAN DEATHS, SHOWING AGE PERIODS.

	0-1	1-5	5-15	15-25	25-35	35-45	45-55	55-65	65-75	75-85	85-95	Unknown	Total
1929 ...	21	5	4	12	12	4	13	13	3	1	1	1	93
1930 ...	28	9	6	19	27	27	27	11	4	—	—	4	163
1931 ...	28	21	4	21	31	27	36	24	13	—	—	5	210
1932 ...	24	7	2	12	21	23	10	11	5	2	—	5	117
1933 ...	13	4	6	13	13	6	18	13	13	2	—	2	103

The following table shows the causes of deaths as given in the Registrar's Return :

Causes of Deaths.	No.
Hydrocephalus ... ..	1
Cerebral Thrombosis ... ..	2
Cerebral Tumour ... ..	1
Acute Meningitis ... ..	1
Blackwater Fever ... ..	20
Malaria ... ..	3
Haemorrhage ... ..	1
Haemophylia ... ..	1
Septicaemia ..... ..	1
Pulmonary Oedema ... ..	1
Pneumonia ... ..	6
Pulmonary Tuberculosis ... ..	2
Pulmonary Embolism ... ..	1
White Asphyxia ... ..	1
Influenza ... ..	1
Tumour of Lung ... ..	1
Broncho-pneumonia ... ..	2
Dropsy ... ..	2
Cardiac-renal Disease ... ..	1
Acute Nephritis ... ..	1
Chronic Nephritis ... ..	2
Cut Throat ... ..	1
Electrocution ... ..	1
Accidental Drowning ... ..	3
Cyanide Poisoning ... ..	1
Suicide ... ..	1
Gunshot Wounds ... ..	2
Accidental Poisoning ... ..	1
Accident ... ..	4
Cancer ... ..	4
Hepatic Carcinoma ... ..	1
Typhoid ... ..	1
Acute Atrophy of Liver ... ..	1
Ilio-colitis ... ..	1
Acute Oedema of Larynx ... ..	1
Cirrhosis of Liver ... ..	1
Ileus Paralyticus ... ..	1
Infantile diarrhoea ... ..	1
Acute Gastro-enteritis ... ..	1
Dysentery ... ..	1
Diverticulitis ... ..	1
Acute Endocarditis ... ..	2
Cardiac Failure ... ..	3
Myocarditis ... ..	2
Auricular Fibrillation ... ..	1
Mitral Stenosis ... ..	1
Rupture of Aorta ... ..	1
Aortic Stenosis ... ..	1
Premature Birth ... ..	5
Senility ... ..	2
Unknown ... ..	1
Osteomyelitis ... ..	1
Natural Causes ... ..	2
<i>Total</i> ... ..	103



5. The distribution of deaths in provinces is as follows :

Luangwa	...	...	...	...	...	53
Batoka	...	...	...	...	...	18
Kafue	...	...	...	...	...	19
Awemba	...	...	...	...	...	3
Barotse	...	...	...	...	...	5
Mweru-Luapula	...	...	...	...	...	2
Tanganyika	...	...	...	...	...	2
Kasempa	...	...	...	...	...	1
<i>Total</i>	...	...	...	...	...	103

6. Thirteen deaths occurred amongst infants under the age of one, the causes being :

Malaria and Bronchitis	...	...	...	...	1
Diarrhoea	...	...	...	...	1
Malaria	...	...	...	...	1
Ilio-colitis	...	...	...	...	1
Premature Birth	...	...	...	...	5
Pneumonia	...	...	...	...	1
Heart Failure	...	...	...	...	1
Acute Meningitis	...	...	...	...	1
White Asphyxia	...	...	...	...	1
<i>Total</i>	...	...	...	...	13

These deaths represent 40.88 per thousand of the total births for the year.

Comparative figures are :

	1929	1930	1931	1932	1933
No. deaths	21	28	28	24	13
Percentage deaths to births	9.9	10.25	8.4	7.23	4.09

As in the case of adult deaths, the rate for the year is extremely low.

### (3) European Officials.

The statistics show a slight improvement over those for the previous year as will be noted :

	1929	1930	1931	1932	1933
Total number of officials resident	515	621	678	750	650
Average number resident	429	558	554	598	525
Total number on sick list	184	232	343	352	239
Total number of days on sick list	1,916	1,964	3,334	3,661	2,204
Average daily number on sick list	5.25	5.66	9.13	10.03	6.03
Percentage of sick to average number resident	1.22	1.01	1.64	1.67	1.14
Average number of days on sick list for each patient	10.41	8.89	9.72	10.40	9.22
Average sick time to each resident	4.47	3.52	6.02	6.12	4.19
Total number invalided	6	—	2	2	2
Percentage of invalidings to total residents	1.16	—	.29	.26	.31
Total deaths	4	1	5	5	1
Percentage of deaths to total residents	.78	.16	.73	.66	.15
Percentage of deaths to average number resident	.93	.18	.92	.83	.19

2. The only death which occurred amongst this class of the community was due to chronic interstitial nephritis.

3. Two officials were invalided, the causes being—  
Mental Instability.  
Coronary Spasm and Myocarditis.

### (4) Native Officials.

It has been found that the returns submitted are incomplete and they are, therefore, omitted. It is, however, permissible to state that there has been very little illness amongst the African staff.

## SECTION III.

### HYGIENE AND SANITATION.

#### General Review of Work Done and Progress Made—Preventive Measures.

##### (1) MOSQUITO AND INSECT-BORNE DISEASES.

##### (a) *Malaria.*

Anti-malarial measures commenced in previous years were continued during 1933.

2. The Medical Officer of Health, Livingstone, reported that *Anopheles gambiae* and *funestus* were the common mosquitoes caught in houses and that they are mainly responsible for the transmission of the disease. Examination of the stomachs gave infective rates of 11 per cent in the case of *A. gambiae* and 1.5 per cent in that of *A. funestus*.



3. In 1931, 216 cases of malaria were admitted to hospital in Livingstone, this representing 13.5 per cent of a population of 1,596. During 1932, 57 cases or 7.4 per cent of a population of 774 were admitted, while the figure for 1933 is 79 cases, or 6 per cent of a population of 1,300. It is submitted that anti-malarial measures such as oiling, draining and the filling-in of breeding places has played a large part in this diminution. The Municipal Council have displayed great interest in this work and are continuing it energetically.

4. The Ndola report states that the malaria position has improved considerably, due chiefly to strict control of the methods of oiling and using Paris Green adopted, combined with efforts to restore and regrade the main drain of the Kansengi-Kanini dambo. The services of unemployed men were utilised in this work but it was not possible to finish it before the onset of the rains. The dambo has been surveyed and plans of the drainage required drawn up. It is hoped that it will be possible to continue the work during 1934. Drainage plans were also prepared for the smaller dambos and suggestions made as to afforestation. The rapidity with which these proposals can be carried into effect will, however, depend on the funds available.

5. In the mine townships steady and continuous progress is being made in anti-malarial work. At Nkana over 10 miles of additional drainage was effected. As soon as the Mufulira Mine was reopened the management at once took steps to restore the drainage system which had existed previous to the date on which it was closed down and this work was completed before the rains began. The efficiency of the Luanshya scheme, which is under the control of the authorities of the Roan Antelope Mine, was fully maintained. The use of quinine as a prophylactic is not favoured by the medical officers of the mine but reliance is placed on measures designed to eliminate the vector of the disease. That such measures can be successfully carried out in limited areas where expense is not a question of vital importance is exemplified by the success of their anti-malarial work. The death rate on this mine for the year was the extraordinarily low one of 4.3 per 1,000.

6. At Lusaka steady work was carried on and the earth drains at the lower end of the town were regraded and depressions filled in. The spraying of pools and other collections of water was continued during the rains. The conditions inseparable from constructional operations with lorries travelling over temporary, unsurfaced earth roads have, however, been favourable for the breeding of mosquitoes. The species commonly found were *A. gambiae*, *A. funestus* and *A. mauritanus*.

7. At Choma weekly oiling of all standing water was continued throughout the wet season and some progress made in the planting of eucalyptus trees in the grounds of the Beit School.

8. At Balovale, owing to the small rainfall, drainage schemes executed in the previous year were found adequate.

9. At Mazabuka oiling, filling in depressions and drainage where required were continued.

10. Fort Jameson. Considerable drainage work was carried out and the large gum plantation in the dambo lying within the township is reported to be well established and in good condition.

11. Fort Rosebery. This station which has, in the past, had the reputation of being infected with a more virulent strain of malaria than other parts of the country, has improved in this respect. This is owing to the strenuous efforts of the Medical Officer to drain the swampy stream which runs through the station. He reports that considerable success has attended his efforts and that the numbers of mosquitoes caught have decreased noticeably.

12. Mongu. Anti-malarial measures have not much scope here as the station, though situated on a bluff, is surrounded on three sides from February to August by the flooded Zambezi plains. All houses are netted, water tanks oiled and undergrowth kept short. Chief reliance against infection is placed on methods of personal prophylaxis, *e.g.*, use of quinine and sleeping nets.

(b) *Blackwater Fever.*

Forty-three cases of this disease occurred during the year, two of the cases being Asiatics. The number of deaths amongst Europeans was 20. The figures show little difference from those for 1932 and the disease still remains responsible for the greatest number of deaths.

(c) *Yellow Fever.*

The measures to be adopted to prevent the importation of this disease into the Territory, particularly by air, have been considered but no final decision had been reached at the end of the year. As yet no air traffic from west to east through Northern Rhodesia has been instituted.

(d) *Trypanosomiasis.*

Eleven cases were reported including one European which ended fatally. This occurred in a hunter who contracted the infection in the Luangwa Valley. The remaining cases were amongst natives in the following areas:

Fort Jameson	...	...	4
Ndola	...	...	1
Mporokoso	...	...	2 (contracted elsewhere)
Mpungwe	...	...	1
Kasungu	...	...	1
Broken Hill	...	...	1 (contracted elsewhere)

2. Owing to the depletion in staff it was not possible to carry out any special sleeping sickness investigations during the year, but as stated earlier, there is no reason to suppose that the disease is increasing. Reference has also been made to the efforts to combat the disease in the Luangwa by the closer settlement of natives and this gives promise of success.



(e) *Relapsing Fever.*

Seventy-one cases, of which three were European, were reported. The distribution was as follows :

Fort Jameson	...	...	59
Kasama	...	...	5
Livingstone	...	...	3
Luanshya	...	...	3
Balovale	...	...	1

As will be observed the Fort Jameson district remains the main focus of the disease.

3. The vector, *O. moubata* is widely distributed over all the higher portions of the country and is infective. It is doubtful whether it will ever be possible to eradicate the disease in the absence of some very cheap and effective method of destroying these ticks. At present the only way in which this can be assured is by burning and this can only be used in huts with permanent walls.

4. It is of some interest to note that the ticks are not found in the Luangwa Valley and that when introduced there, as has been the case by natives returning from work on the Fort Jameson tobacco plantations, they have always died out. The purpose underlying this practice is the acclimatisation of the tick so that the disease might be contracted and immunity acquired before these valley natives left their homes to seek employment in areas in which relapsing fever is highly endemic, e.g., the tobacco plantations at Fort Jameson.

## (2) EPIDEMIC DISEASES.

(a) *Smallpox.*

One hundred and sixty-five cases, with four deaths, were reported as below :

Lusaka	...	...	130
Barotseland	...	...	24
Fort Rosebery...	...	...	8
Mazabuka	...	...	3

2. The localised epidemic in the Lusaka District was quickly brought under control and no extension occurred.

*Vaccination.*

Government supplied 12,500 tubes of lymph and 17,595 vaccinations were reported, the largest numbers being at the following stations :

Lusaka	...	...	9,000
Fort Rosebery...	...	...	5,196
Kapalala	...	...	3,152
Fort Jameson	...	...	247

(b) *Cerebro-spinal Meningitis.*

Only eleven cases were reported which shows a steady improvement in the incidence of the disease during the past four years :

	1930	1931	1932	1933
Cases ...	97	63	15	11

2. It is probable that improved housing and less over-crowding is responsible for the change, more particularly in the mining area.

(c) *Dysentery.*

Sixteen cases of bacillary and 65 cases of amoebic dysentery were reported which shows a slight improvement over the figures for 1932, namely 80 and 86. Of these 6 cases of the bacillary and 34 of the amoebic type occurred in Europeans. Lusaka still remains the chief centre of this group and 59 of the cases occurred there.

2. The improvement in the mining area continued during 1933 and the only cases reported were from Nkana where 7 were observed.

(d) *Diphtheria.*

Four cases were reported from Lusaka and one from Broken Hill. The distribution remains the same as during 1932 and would appear to indicate that carriers exist in these localities.

(e) *Enteric Group.*

Twenty-four cases were reported (9 European and 11 native) from the following centres :

	Europeans.			Natives.
Livingstone ...	...	...	4	2
Broken Hill	...	...	1	—
Luanshya ...	...	...	1	1
Lusaka	...	...	1	5
Nkana	...	...	—	2
Ndola	...	...	1	—
Choma	...	...	1	1
			9	11
			==	==

(f) *Tuberculosis.*

Forty-five cases of the disease were notified of which 27 were of the pulmonary type.

2. Two European deaths occurred from this cause.



3. While the largest number of cases occurred in the mining area, the disease has been observed in many of the outlying areas and it is apparent that the incidence is greater than had been thought. To some extent the industrialisation of the natives may be responsible for the spread of the disease though it is impossible to speak dogmatically on the point. However, the occurrence of the infection is a strong argument for improving the housing hygiene and village sanitation of the natives by every possible means.

(g) *Leprosy.*

One hundred and eighty-four cases were notified during the year. The Balovale District appears to be particularly involved and the Medical Officer estimates that 2 per cent of the population are lepers. The Secretary for Native Affairs states that there is no evidence that the disease is increasing.

(h) *Rabies.*

One fatal case (native) of this disease was reported from Monze. Fifty-five courses of vaccine were given to Europeans and natives who had been exposed to possible infection chiefly at points along the railway line.

2. The infection is also known to exist in Barotseland, but so far it has not spread to the north-eastern portion of the Territory.

3. In the early part of the year a Committee was appointed to consider the subject and made recommendations designed to lessen the danger in settlements, but it cannot be claimed that great success has attended them. The infection is enzootic in jackals and other wild fauna and spreads from them to native dogs which exist in extremely large numbers in the villages in the railway strip. Short of destroying all these, and this is a practical impossibility for various reasons, it cannot be expected that much progress can be made in wiping out the disease.

(i) *Measles.*

Forty-seven cases occurred on a mission station near Balovale but the disease was of a mild type and did not extend.

(j) *Whooping Cough.*

Cases were reported from Choma and the Fort Jameson area but the disease did not assume serious proportions.

(k) *Varicella.*

Two hundred and fifteen cases were reported from the mining area and the Medical Officer, Ndola, reported eight amongst prisoners. It also occurred in 10 native districts but the outbreaks were confined to single villages.

(l) *Pneumonia and Influenza.*

Influenza was discovered in Chinsali, Mankoya and Sesheke Districts but the disease was of a milder form than usual. The Medical Officer, Livingstone, reports that the mortality from this disease was 13 per cent as compared with 17.8 per cent in 1932 and goes on to remark that the disease was responsible for about 32 per cent of the total deaths for the year. These figures are inflated, however, by many of the cases not being brought into hospital until moribund.

2. The Medical Officer at Ndola states that the pneumonia occurring on the mines was due to a streptococcus.

3. As will be seen from the appended table, the number of cases of diseases of this group on the mines shows an increase over the figures for 1932 though the number of deaths is less in almost every case. In the outlying districts the figures show an improvement over those for the previous year :

	Lobar and Broncho-pneumonia				Influenza and Influenzal-pneumonia				Total			
	Cases		Deaths		Cases		Deaths		Cases		Deaths	
	1932	1933	1932	1933	1932	1933	1932	1933	1932	1933	1932	1933
Livingstone ... ..	—	—	—	—	227	172	—	23	227	172	41	23
Choma... ..	19	—	6	—	2	—	—	—	21	—	6	—
Mazabuka ... ..	12	6	2	1	21	—	—	—	33	6	2	1
Lusaka ... ..	44	49	15	22	6	14	—	1	50	63	15	23
Broken Hill (including mine)	17	—	—	—	135	186	—	25	152	186	22	25
Ndola ... ..	—	25	—	9	40	7	—	—	40	32	7	9
Fort Rosebery ... ..	—	—	—	—	19	3	—	1	19	3	3	1
Kasama ... ..	—	—	—	—	10	12	—	3	10	12	1	3
Fort Jameson ... ..	5	17	2	9	15	2	—	—	20	19	4	9
Mongu ... ..	10	7	2	2	55	22	—	1	65	29	3	3
Balovale ... ..	3	23	2	5	10	1	—	—	13	24	2	5
Mufulira Mine ... ..	2	16	—	3	—	4	—	—	2	20	—	3
Nkana Mine ... ..	144	260	43	39	176	200	—	2	320	460	44	41
Roan Antelope Mine...	23	85	3	9	79	62	—	—	102	147	3	9



(m) *Venereal Diseases.*

The reported incidence of this group is as below :

					Syphilis.		Gonorrhoea.	
					1932	1933	1932	1933
Livingstone	...	...	...	...	75	186	10	40
Choma	...	...	...	...	28	23	1	7
Mazabuka	...	...	...	...	92	157	15	15
Lusaka	...	...	...	...	98	942	14	30
Broken Hill	...	...	...	...	65	97	5	16
Ndola	...	...	...	...	—	824	—	24
Kasama	...	...	...	...	49	37	4	14
Fort Rosebery	...	...	...	...	67	186	4	20
Fort Jameson	...	...	...	...	43	54	5	15
Mongu	...	...	...	...	518	1,743	40	69
Balovale	...	...	...	...	298	646	42	105
Roan Antelope	...	...	...	...	13	39	1	15
Nkana	...	...	...	...	22	29	1	6
Mufulira	...	...	...	...	3	2	4	—

(3) *HELMINTHIC DISEASES.*(a) *Ankylostomiasis.*

Is widely spread throughout the Territory though most Medical Officers are of the opinion that the infections observed are light and not of economic importance. The Medical Officer, Livingstone, and Dr. Chisholm of Mwenzo Mission in the Isoka District, state that in their experience the disease is of definite importance.

(b) *Schistosomiasis.*

Is also widely spread. At Lusaka two European cases were treated.

2. Routine examinations of all admissions to the Roan Antelope Mine native hospital gave an infection rate of 15 per cent. At Livingstone 39 cases were found.

3. The only species reported has been *S. haematobium*.

4. Investigations at Ndola resulted in the isolation of *Planorbis pfeifferi* and *Isidora tropica* as well as of other unidentified snails in the Itawa Swamp, while at Livingstone snails involved in the transmission of the infection were found in the Maramba Stream close to the native compound.

(c) *Taeniasis.*

Appears to be a comparatively uncommon condition.

(4) *GENERAL MEASURES OF SANITATION.*(a) *Sewage Disposal.*

Little can be added to former reports.

2. At Livingstone a new disposal site at a suitable distance from the town was started, mechanical transport for the removal of night soil employed and a double bucket system installed. The old scattered disposal sites were closed down and it may now be said that the town possesses a good conservancy system.

3. At Ndola the conservancy system was completely changed. A motor tank waggon, capable of cleaning the whole town each night, was put into operation in place of the old ox-drawn waggon and a duplicate removal system adopted. The service is now efficient. Disposal of night soil by burial in trenches has been replaced by biological treatment and broad irrigation. It is proposed to erect a model pail cleaning plant in due course.

4. At Lusaka the Management Board, for financial reasons, was unable to proceed with the installation of a double bucket system, but the one in use functioned satisfactorily.

All the new buildings at the new Administrative Headquarters are supplied with septic tanks and water-borne sanitation.

5. The efficiency of the services in the mining towns at Nkana and Luanshya have been fully maintained. At Mufulira, which reopened in July, an improved system of dealing with sewage was adopted and the disadvantages of sanitary farms eliminated.

6. On outstations the bucket system is employed in all European quarters, largely in gaols and in some instances in native quarters as well, though where conditions are suitable deep pit latrines are more commonly found. The use of incinerators for the ultimate disposal of waste materials of all descriptions is being extended.

(b) *Scavenging and Refuse Disposal.*

At Livingstone refuse is incinerated during the rains and utilised for filling in mosquito-breeding localities during the dry weather.

2. In other localities tipping is the commonest method adopted and reports indicate that it has been satisfactorily controlled and did not give rise to fly-breeding to any extent.

3. As stated above, the use of incinerators for refuse disposal is being increasingly employed on the smaller Government stations.



(c) *Water Supplies.*

1. *Livingstone.* The new water scheme which involved the laying of a new pipe line from the pumping station on the Zambezi River, the building of sedimentation tanks, and provision of chlorinating plant made considerable progress during the year and should be in operation early in 1934.

2. *Lusaka.* Samples of water supplied to the New Capital site showed signs of contamination and to correct this a chlorinating plant was installed during the year. The water in the old town is still obtained from shallow wells in the limestone and these are liable to gross pollution. The extension of a piped supply from the boreholes is obviously required.

3. *Ndola.* It is reported that the supplies in all centres are satisfactory. *Bacillus coli* was not found in any of the samples of the Ndola water submitted for examination and the organism growing at blood heat varied from 37 per c.c.m. in October to 256 per c.c.m. in February.

4. During the year a piped supply was provided for the native employees living in the Government compound.

(d) *Clearing of Bush and Undergrowth.*

This has been continued at all townships and stations throughout the year.

(e) *Sanitary Inspections.*

1. *Livingstone.* Routine inspections of all premises engaged in the production or sale of food-stuffs were continued and improvement shown as regards general cleanliness, protection from dust and flies, and the manufacture of safe products in aerated water factories. A number of prosecutions were instituted for the sale of dirty milk and convictions obtained in every case.

2. *Lusaka.* Regular inspections were maintained and steady progress made in effecting improvements in premises devoted to the sale of foodstuffs. The total number of inspections was 1,834 and 184 nuisances were abated.

3. *Ndola.* Regular inspections were made and conditions obtaining were reported to be most satisfactory.

(5) *SCHOOL HYGIENE.*

Bi-yearly visits of inspection to all Government schools were made by Medical Officers and Dentists as usual.

2. School premises were found to be maintained in a clean and satisfactory condition.

3. Before any child can be examined the consent of the parents has to be obtained and speaking generally it is accorded, though there is a small percentage of refusals at every school.

4. With the exception of one school in the Lusaka area, the health of the children was reported to be good and their nutrition satisfactory. At schools which accept day scholars as well as boarders the physical conditions of the latter was invariably better than that of the former class and reflects credit on the officials responsible for the management of the hostels.

5. Conditions as regards the health of scholars were most unsatisfactory at Silver Rest, in the Lusaka area. This school is established in a farming area which has been disastrously affected by the depression. The inspecting Medical Officer reported that the children generally were badly under-nourished and obviously suffering from chronic malaria as shown by the extremely high splenic index (55 per cent) and low haemoglobin index (80 per cent). Arrangements were made for the free issue of prophylactic quinine to this school, the drug to be administered under supervision and it has since been reported that this has effected marked improvement in the condition of the scholars attending the school.

6. Statistics as to the degree of splenic and tonsillar enlargement at the various schools are given in the following table :

School.	Splenic enlargement observed in	Tonsillar enlargement observed in	Haemoglobin.
Livingstone ... ..	8%	—	—
Broken Hill ... ..	3%	13%	—
Choma ... ..	5%	4%	—
Mulendema ... ..	14%	29%	—
Silver Rest ... ..	55%	38%	73%
Lusaka ... ..	19%	1.45%	80.8%
Ndola ... ..	—	4.2%	—
Bwana Mkubwa ... ..	8%	20%	—
Nkana ... ..	5.1%	35%	—



## 7. Data as to dental inspections are :

School.	No. of Scholars	No. Examined
Livingstone ... ..	123	82
Choma ... ..	56	32
Mazabuka ... ..	55	45
Lusaka ... ..	175	142
Silver Rest ... ..	42	31
Fort Jameson ... ..	12	12
Luanshya ... ..	not stated	104
Broken Hill ... ..	do.	70
Ndola ... ..	do.	59
Bwana Mkubwa ... ..	do.	26
Nkana ... ..	do.	81

8. In general the dental reports indicate that treatment was found to be required in approximately from 50 to 75 per cent of the children. It has to be recorded, however, that many of the parents, particularly the less well-to-do, completely ignore the recommendations made though free treatment is available if the District Commissioners are satisfied that they are not in a position to pay the dental fees.

9. The same remarks apply as regards the recommendations of the Medical Officers.

## (6) LABOUR CONDITIONS.

(a) *General Industrial Conditions.*

Problems connected with unemployment showed some improvement during the year. A considerable number of destitute Europeans were assisted to return to their countries of origin, others found employment on the reopening of the Mufulira Mine, and all actually requiring them were supplied with rations at Government expense. The Welfare Associations at Lusaka and particularly at Ndola were also of great assistance in dealing with the unemployed and more specifically in supplying milk and extras to the children.

2. The opportunities afforded the natives of securing work were severely restricted and it is estimated that only 60,652 were employed during the year either within or without the Territory. This may be compared with the peak figure of 114,702 reached in 1929. Some improvement occurred in the mining area where the number of natives employed rose from 6,677 in January to 12,361 in December and an increase also occurred in the number employed by the Zambesi Sawmills.

(b) *Recruitment.*

No recruiting was done during the year as every employer of labour found it easy to fill all his requirements from volunteers.

(c) *Housing.*

As remarked in last year's report, the housing of natives on the mines leaves little to be desired.

2. At Ndola, where conditions had been unsatisfactory, a commencement was made in providing new huts and by the end of the year 44 had been erected. This work will proceed in 1934 immediately weather conditions permit. A marked decrease in the number of natives living in the town occurred and this assisted materially in effecting improvements. The native population fell to 2,758 as compared with 3,792 in 1932.

3. The housing conditions in the compound of the Zambezi Sawmills in Livingstone were found to be unsatisfactory and they were served with a statutory notice. Plans were drawn up to give effect to the recommendations of the Medical Officer of Health and work has been started and will steadily continue until the whole scheme is completed.

4. Elsewhere little or no improvement can be recorded. The acute financial depression resulting in markedly lessened business activities and greatly reduced markets for agricultural produce prevented the expenditure of money on capital works.

(d) *Welfare and Medical Care of Native Labour.*

In the case of the larger employers of natives this is irreproachable. The mines possess modern and well-equipped hospitals and laboratories, adequately staffed, in which the natives are assured of efficient treatment while the Railways, Broken Hill Mine and the Sawmills at Livingstone utilise the Government institutions for the treatment of their employees.

2. Reference was made in the 1932 report to the steps adopted by the mines to educate their native labour in safety and first-aid principles and to their adoption of various means to avoid accidents, but despite this the fatal accident rate rose during the year to 3.93 per thousand, the highest figure on record. The number of fatal accidents was 38, the commonest cause being falls of rock. The serious personal accident rate also rose to 13.67 per thousand, which again constitutes a record. On the other hand the sickness death rate amongst labour on the mines reached the low figure of 7.87 per thousand for the year.

3. A ward for women, in charge of a European Sister, was added to Nkana native hospital and in December the Government Welfare Sister was transferred to Luanshya where she will supervise this work in both the Government and mine townships.



## (7) HOUSING AND TOWN PLANNING.

No remarks can be made as building operations during the year were at a standstill except at the New Administrative Headquarters at Lusaka.

## (8) FOOD IN RELATION TO HEALTH AND DISEASE.

(a) *Inspection and Control.*

Systematic inspections were maintained at all the chief centres including the mining townships and the reports indicate that improvements already effected were maintained and further progress made.

2. Inspections of all carcasses slaughtered at Livingstone, Lusaka and Ndola were carried out and the results are given in the table below :

*Animals Slaughtered.*

Stations.	Bovines.	Sheep.	Pigs.	Goats.
Livingstone ... ..	2,282	492	310	—
Lusaka ... ..	1,710	573	380	51
Ndola ... ..	1,217	246	250	—
<i>Totals</i> ... ..	<u>5,109</u>	<u>1,311</u>	<u>940</u>	<u>51</u>

*Meat Condemned.*

Stations.	Weight in lbs.
Livingstone ... ..	4,460 (24-4—31-12-33)
Lusaka ... ..	32,404
Ndola ... ..	33,305
<i>Total</i> ... ..	<u>70,169</u>

*Causes of Condemnation.**Livingstone.*

Flukes <i>D. Hepatica</i> ... ..	1,778
Bruising ... ..	311
Cirrhosis of Liver ... ..	5
Abscesses ... ..	289
Emaciation ... ..	383
<i>S. Hepatica</i> (Sheep Liver) ... ..	153
<i>Onchocercosis</i> ... ..	720
<i>C. Cellulosae</i> (Pigs) ... ..	370
Lobknee Disease ... ..	195
Parasitic infection (not named) ... ..	166
<i>C. Echinococcus</i> ... ..	45
Oedema (Localised) ... ..	10
Pneumonia ... ..	35
<i>Total</i> ... ..	<u>4,460</u>

*Lusaka.*

Oxen.	No.
<i>C. bovis</i> ... ..	31
Hydraemia ... ..	10
Dropsy ... ..	1
Tuberculosis ... ..	1
Bruising ... ..	2
Abscesses ... ..	Organs
<i>D. hepaticum</i> ... ..	do.
Deg. Cysts ... ..	do.
Cirrhosis ... ..	do.
<i>Echinococcus</i> ... ..	do.
Fatty Degeneration ... ..	do. Total weight, 30,322 lbs.

*Sheep :*

Caseous Lymphadenitis ... ..	2
<i>S. hepatica</i> ... ..	Portions
Abscesses ... ..	do.
Hydatid Cysts ... ..	do. Total weight, 544 lbs.

*Pigs :*

<i>C. cellulosae</i> ... ..	16	Total weight, 1,538 lbs.
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Ndola.				
Total weight slaughtered	...	...	519,432 lbs.	
Total weight condemned	...	...	33,305 lbs.	
	No.		Weight	Condemned.
<i>C. bovis</i> ...	49		24,230	
<i>C. cellulosa</i> ...	21		1,925	
Malignant Oedema ...	2		640	
Septicaemia ...	1		396	
Tuberculosis ...	7		193	
Pneumonia ...	1		8	
Abscesses ...	3		38	
Pharyngeal Adanitis ...	1		20	
<i>S. Centripunctata</i> ...	58		90	
<i>C. Tenuicollis</i> ...	1		2	
<i>D. Hepaticum</i> ...	429		4,285	
Cirrhosis ...	56		584	
<i>C. Echinococcus</i> ...	55		201	
<i>S. Hepaticum</i> ...	6		8	
Strongylosis ...	4		21	
Pericarditis ...	5		15	
Congestion ...	3		9	
Bruising ...	10		57	
Angioma ...	4		16	
Benign Growth ...	3		16	
Hydraemia ...	10		429	
Fatty Degeneration ...	4		13	
Calcified Spinosis Processes	3		37	
Atrophy ...	2		25	
Peritonitis ...	1		43	
Sarcocysts ...	1		2	
Hydro Nephritis ...	1		2	
<i>Total</i> ...	<i>714</i>		<i>33,305</i>	

Of the 49 cases of *C. bovis* and 21 of *C. cellulosa* it was possible to save 41 of the former and 6 of the latter by freezing, thereby reducing the total amount condemned by 18,395 lbs.

(b) *Slaughter Houses.*

The new abattoir at Livingstone was put into commission early in the year, and plans for one to be erected at Lusaka approved.

2. It is reported that the Nkana abattoir has about reached the limit of its usefulness and that the erection of a new one will be required in the near future.

(9) RECOMMENDATIONS FOR FUTURE WORK.

Until signs are apparent that the revenue of the Territory is showing considerable improvement it will only be possible to maintain public health services on the present restricted basis, but it is considered that it would be advisable for Government to appoint one full-time Medical Officer of Health in 1935 in order that the work already being done could be efficiently supervised and co-ordinated and to afford him an opportunity of familiarising himself with the conditions and needs of the country and thus be placed in a position to offer considered advice on the steps required to effect improvements.

## SECTION IV.

### PORT HEALTH WORK AND ADMINISTRATION.

The only port in the Territory is at Mpulungu on Lake Tanganyika. It was impossible to maintain regular inspections of the vessel owing to the withdrawal of the Medical Officer from Abercorn, but information as to disease was received and given by the Customs Officer who visited the port when the steamer arrived on the occasions when a Medical Officer was unable to attend. It should be noted that the ship plies only between Kigoma in Tanganyika Territory and Mpulungu.

## SECTION V.

### MATERNITY AND CHILD WELFARE.

#### Livingstone.

The Nursing Sister appointed by Government in 1932 to supervise child welfare work amongst Europeans and natives resigned early in the year and was not replaced until September. During the interval the work was in charge of the Matron, Livingstone Hospital.

2. The District Nurse, appointed by the voluntary society interested in this aspect of medical work, also resigned during the year but her duties were assumed by the welfare nurse following the amalgamation of the Child Welfare and District Nursing Associations. Government assists the combined Associations to the extent of £200 per annum.



3. During the last three months of the year cases treated at the various centres were as follows :

European Welfare Clinic.				
Total cases treated	...	...	...	59
Total attendances	...	...	...	100
Vaccinations	...	...	...	10

Native Welfare Clinic.				
Total cases treated	...	...	...	114
Total attendances	...	...	...	250

District Nursing.				
Cases visited	...	...	...	7
Visits to Nurse	...	...	...	14

Maramba Compound General Dispensary.				
Cases treated	...	...	...	341
Attendances	...	...	...	3,290

4. The Medical Officer, Livingstone, who acts in an advisory capacity to the Association reports that valuable work has been done and that it is appreciated by all sections of the community.

#### Ndola.

A full-time sister is maintained by Government at Ndola for welfare work, and has been of great assistance.

2. During the year 96 children over the age of one, and 50 infants were seen. The total number of attendances at the clinic was 4,713 while 508 domiciliary visits were made. Eighty per cent. of the 96 children attending were from the houses of unemployed men. By the end of the year 60 per cent. of these had found employment as a result of increased mining activities, and it is hoped that conditions in this respect will improve still further.

3. Dr. Adderley, a private practitioner, acted as honorary consultant to the European clinic and the Government is indebted to him for his assistance.

4. A new native clinic was opened in March and has proved most successful, as is shown by the following figures :

Male cases	...	...	...	516
Female cases	...	...	...	708
Children	...	...	...	1,978

The total number of attendances was 15,026.

5. The Sister-in-charge attended daily and treated minor cases, the more serious ones being sent to hospital. Simple talks on hygiene, feeding, etc., were given by her to the patients. The Medical Officer, Ndola, was in general charge of this work.

#### Kasama.

The welfare nurse was stationed at Kasama until December, when she was transferred to Luanshya.

2. The station was visited by the Deputy Director in June when he found that the attendances had fallen to such an extent owing to the shifting of the native population that the continued maintenance of the sister had become uneconomical, more particularly when her services could be utilised to much better advantage elsewhere.

3. His Excellency the Governor investigated the question personally when he visited Kasama later and gave instructions that the nurse was to be transferred to Luanshya, which is a Government township in close proximity to the Roan Antelope Mine. It is anticipated that the opportunities presented for welfare work will be much greater than at Kasama.

#### Lusaka.

In September a welfare centre was opened at this station and Dr. Florence Adam Thomson, who had previously been engaged in this work under the Gold Coast Government, was placed in charge. She was assisted in organising the work by the local Child Welfare Association, which has assumed responsibility for the funds required other than salaries and expenses of the native clinic. These are borne partly by Government and partly by the Lusaka Management Board.

2. Dr. Thomson reports that the attendances have been steadily increasing. Considering the large numbers of destitute and semi-destitute Europeans living in the neighbourhood of Lusaka the importance of the clinic cannot be exaggerated.

3. A clinic was opened in the native location, and the number of cases seen has doubled in the three months it has been in active existence. Cases treated numbered 588 with a total attendance of 2,215. Two thousand six hundred vaccinations were performed.

#### Missions.

Most of the missions in the Territory are also taking an active interest in welfare work, and the value of their assistance amongst the native population cannot be exaggerated.



2. The Salvation Army appointed a sister for general and welfare duties at their station at Ibwe Munyama in the Zambezi Valley portion of the Mazabuka district, and the Medical Officer reported that she was doing excellent service.

## SECTION VI.

### HOSPITALS, DISPENSARIES AND VENEREAL CLINICS.

The Ndola combined European and native hospital, which had been receiving patients at the end of 1932, was formally opened by His Excellency the Governor in January, as was also in April the Beit Maternity Home in Livingstone which provides accommodation for six patients and is completely fitted out for the special purpose for which it was designed. It has proved of the greatest value, and for this addition to the hospital amenities of Livingstone the Government and the public generally are under a debt of gratitude to the Trustees of the Beit Fund. A similar block was provided by this Trust at Ndola.

2. At Lusaka additional temporary accommodation was provided for native patients by transferring a wood-lined corrugated iron building which had previously been used as European quarters in Livingstone. Minor improvements were made at other native hospitals, but no work of any magnitude was possible owing to monetary difficulties.

3. Government maintains seven European and eleven native hospitals, twenty-five dispensaries on Government stations and thirteen rural dispensaries in charge of African orderlies. A new dispensary was opened during the year at Nduweni in the Ndola district.

4. In addition to these the various mission societies maintain twenty-seven native hospitals, six of which are controlled by doctors and the remainder in charge of nurses or other trained staff. A number of dispensaries are also established under mission auspices.

5. The various mines are provided with extremely well-equipped European and native hospitals and these are utilised by Government for the treatment of natives living in the vicinity.

6. Reference has been made earlier to the great need there is of developing medical services in rural areas, and for the provision of facilities for providing a better class of orderly than is available at present. A certain number have been trained principally at Livingstone, and have been drafted to outstations as the occasion demands. At other centres, e.g. Kasama, Ndola, Balovale, the Medical Officers have given further training with beneficial results.

7. Venereal disease, more particularly syphilis, is prevalent along the railway strip and in Barotseland. Special venereal clinics do not exist but treatment of these diseases is an important part of the work on every medical station, and the striking and rapid improvement in symptoms following injections is everywhere causing increasing numbers of natives to come forward. In fact it is a common experience to have natives ask for injections whatever complaint they may have.

The Medical Officer, Ndola, reports that 148 cases of syphilis were treated as in- and 676 as out-patients, and that there were definite signs at the end of the year that the disease was being stamped out in the native location.

It is of interest to note that tertiary syphilis is uncommon and parasymphilitic conditions still more so. It is possible that the fact that the natives are constantly exposed to malarial infection may account for the latter fact.

8. At Balovale there is a small leper colony, and at Mongu the Medical Officer has special bi-weekly clinics for the treatment of this disease, the attendances at which vary between 5 and 15. This disease is not commonly seen in the hospitals along the railway line though a few cases are ordinarily under treatment. It is much more frequently observed in the purely native areas, and most of the work is in the hands of the missions, several of which are specially subsidised by Government.

9. Rural dispensaries have done valuable work, and the figures for the Kasama and Fort Jameson areas, where they are most fully developed, may be quoted :

				In-patients	Out-patients	Attendances
Kasama	...	...	...	403	16,332	—
Fort Jameson	...	...	...	791	10,440	69,640

At the two dispensaries in Livingstone under the control of the Government and Municipality respectively the attendances were 12,154 and 12,880.

10. The various missions engaged in medical work were requested to submit reports on the work they were doing, but some difficulty has been experienced in obtaining complete and uniform data. In the following table, however, the available figures are given and afford some indication of the value of their assistance to the native population, more especially when it is remembered that child welfare clinics, special leper settlements and other medical activities form part of their ordinary routine.

Name	Period	In-patients	Out-patients	Attendances
University Missions for Central Africa, Fiwila	1/1— 30/6/33	52	2,323	4,687
University Missions for Central Africa, Mkushi	1/4— 30/6/33	16	300	2,664
Livingstonia Mission, Lundazi ... ..	1/1— 30/9/33	59	—	7,017
Sinde Mission, District Livingstone ... ..	1/1— 30/9/33	259	—	—
Kabanga Mission, Kalomo ... ..	1/1— 30/9/33	44	704	—
Chipembi Mission, Chisamba ... ..	1/1— 30/6/33	—	—	3,468
Namwianga Mission, Kalomo... ..	1/1—31/12/33	—	—	1,908
Sesheke Mission ... ..	1/1—31/12/33	112	2,398	2,510
Madzimoyo Mission ... ..	1/7—31/12/33	242	—	5,402
Macha Mission, Choma ... ..	1/5— 30/9/33	—	1,010	2,200
South African General Mission, Mukinge Hill	1/1— 30/9/33	158	—	7,706
Jesuit Fathers, Broken Hill ... ..	1/1— 30/6/33	174	3,198	—
Chitambo Mission ... ..	1/1— 30/9/33	66	1,985	5,895
Rusangu Mission ... ..	1/1— 31/3/33	—	—	655
Kasenga Mission, Namwala ... ..	1/4— 30/9/33	153	1,059	5,600
London Missionary Society, Mporokoso ... ..	1/6— 30/9/33	—	—	3,196
Mwenzu Hospital, Livingstonia Mission ... ..	1/1— 30/9/33	464	—	8,048
Kawimbi Mission, Abercorn ... ..	1/1—31/12/33	60	—	16,582
Msoro Mission, Fort Jameson... ..	1/1— 30/9/33	92	2,430	19,421
Luampa Mission ... ..	1/1— 30/6/33	49	12,831	20,358
Livingstonia Mission, Lubwa ... ..	1/4— 30/9/33	134	—	18,922
Salvation Army, Mazabuka ... ..	1/1— 30/6/33	—	947	—
Kalomo Dispensary ... ..	1/1—30/11/33	100	1,348	—

11. The admission, daily averages and deaths in the various Government hospitals are given in the two tables subjoined :

#### EUROPEAN HOSPITALS.

Hospital.	Year.	Daily Average.	Admissions.	Deaths.
Livingstone ... ..	1932	13.40	449	7
	1933	12.88	385	10
Lusaka ... ..	1932	11.55	371	12
	1933	9.44	374	7
Broken Hill ... ..	1932	9.39	371	10
	1933	20.85	240	9
Bwana Mkubwa ... ..	1932	3.87	190	3
Ndola ... ..	1933	7.49	256	4
Fort Jameson ... ..	1932	.59	36	3
	1933	.76	24	
Kasama ... ..	1932	.70	23	2
	1933	1.06	31	—
Mongu ... ..	1932	.15	5	—
	1933	.22	6	—

#### NATIVE HOSPITALS.

Hospital.	Year.	Admissions.	Deaths.
Livingstone ... ..	1932	1,063	115
	1933	1,100	72
Choma ... ..	1932	280	11
	1933	226	9
Mazabuka ... ..	1932	578	19
	1933	573	9
Lusaka ... ..	1932	612	61
	1933	818	67
Broken Hill ... ..	1932	716	54
	1933	1,014	57
Bwana Mkubwa ... ..	1932	598	32
Ndola ... ..	1933	923	42
Kasama ... ..	1932	363	6
	1933	432	11
Fort Rosebery ... ..	1932	298	10
	1933	399	6
Fort Jameson ... ..	1932	337	28
	1933	358	22
Mongu ... ..	1932	1,113	18
	1933	1,018	18
Balovale ... ..	1932	654	9
	1933	941	11



12. The following table shows the number of attendances of native out-patients at various stations during the year :

Livingstone ... ..	6,099	Luwingu ... ..	2,906
Mazabuka ... ..	5,896	Mpika ... ..	3,265
Lusaka ... ..	5,335	Chambesi Rural Dispensary ...	3,761
Broken Hill ... ..	24,660	Mang'onje ... ..	9,171
Ndola ... ..	1,195	Njobo ... ..	17,337
Fort Rosebery... ..	15,420	Nkonjo ... ..	798
Fort Jameson ... ..	11,837	Maguyu ... ..	19,394
Kasama ... ..	4,609	Kawaza ... ..	9,880
Mongu ... ..	13,131	Lundazi ... ..	13,858
Balovale ... ..	8,407		

## SECTION VII.

### PRISONS AND ASYLUMS.

The prisons were inspected weekly and daily sick parades held.

2. The health of prisoners throughout the Territory has been satisfactory and no cases of deficiency disease have occurred. It will be recalled that in 1932 a few cases of pellagra were diagnosed at Broken Hill.

3. At Balovale a new prison was built, consisting of a brick and thatch building with separate kitchen. Financial stringency prevented any major alterations on other stations.

4. Towards the end of the year new scales of rations were authorised as below. It should be noted that the one applying to prisoners admitted for three months or less affects chiefly tax defaulters who, as a rule, only serve sentences of from one month to six weeks.

#### Scale of Diet for Prisoners.

##### DIET No. 1.

##### *For Europeans : Per Day.*

Boer Meal (or Bread if obtainable)...	1 lb.	Coffee or Tea ... ..	1 oz.
Sugar ... ..	2 ozs.	Fresh Milk (or equivalent amount	
Salt ... ..	$\frac{1}{2}$ oz.	of Preserved Milk) ... ..	3 ozs.
Fresh Vegetables ... ..	1 lb.	Rice or Dried Peas or Beans or	
Baking Powder (if Bread not issued)	$\frac{1}{4}$ oz.	Groundnuts ... ..	2 ozs.
Dripping ... ..	2 ozs.	Lemon Juice (or 1 fresh Lemon) ...	2 ozs.
Fresh Meat ... ..	1 lb.	Mealie Meal ... ..	2 ozs.

##### SPARE DIET.

##### *Per Day.*

Boer Meal ... ..	$\frac{1}{2}$ lb.	Fresh Meat ... ..	$\frac{1}{2}$ lb.
Rice ... ..	2 ozs.	Coffee ... ..	$\frac{1}{2}$ oz.

##### DIET No. 2.

##### *For Asiatics : Per Day.*

Boer Meal (or Bread if obtainable)	1 lb.	Sugar... ..	1 oz.
Salt ... ..	$\frac{1}{2}$ oz.	Dried Peas or Beans or Groundnuts	2 ozs.
Baking Powder (if Bread not issued)	$\frac{1}{4}$ oz.	Fresh Meat ... ..	$\frac{1}{2}$ lb.

##### *Three Days a Week.*

Fresh Vegetables ... ..	1 lb.	Rice ... ..	2 ozs.
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##### *Two Days a Week.*

Lemon Juice (or 1 fresh Lemon) ...	2 ozs.
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##### SPARE DIET.

##### *Per Day.*

Boer Meal ... ..	$\frac{1}{2}$ lb.	Fresh Meat ... ..	$\frac{1}{2}$ lb.
Rice ... ..	2 ozs.		

##### DIET No. 3.

##### *For Natives sentenced to three months or more : Per Day.*

Salt ... ..	$\frac{1}{2}$ oz.	Fresh Vegetables ... ..	$\frac{1}{2}$ lb.
Grain ... ..	2 lbs. or	Mealie Meal ... ..	1 $\frac{1}{2}$ lbs.

##### *Five Days a Week (to be issued on Days on which Meat is not issued).*

Dried Lentils or Beans or Groundnuts	2 ozs.
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##### *Two Days a Week.*

Lemon Juice (or 1 fresh Lemon) ...	2 ozs.	Fresh Meat (or Fish) ... ..	$\frac{1}{2}$ lb.
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##### SPARE DIET.

##### *Per Day.*

Salt ... ..	$\frac{1}{2}$ oz.	Mealie Meal ... ..	$\frac{3}{4}$ lb.
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##### *On Days on which it is issued to Prisoners on Full Diet.*

##### *For Natives sentenced to less than Three Months : Per Day.*

Salt ... ..	$\frac{1}{2}$ oz.	Fresh Vegetables ... ..	$\frac{1}{2}$ lb.
Dried Lentils or beans or Groundnuts	2 ozs.		
Mealie Meal ... ..	1 $\frac{1}{2}$ lbs. ; or	Grain ... ..	2 lbs.

##### *Two Days a Week.*

Lemon Juice (or 1 fresh Lemon) ...	2 ozs.
------------------------------------	--------

## SPARE DIET.

Per Day.

Salt ... ..  $\frac{1}{2}$  oz. Mealie Meal ... ..  $\frac{3}{4}$  lb.  
*On Days on which it is issued to Prisoners on Full Diet.*

Lemon Juice (or 1 fresh Lemon) ... 2 ozs.

5. Committals during the year were :

Prison	Committals	Daily average No. of Prisoners
Livingstone ... ..	1,113	211.6
Broken Hill ... ..	1,034	211
Fort Jameson ... ..	351	47.47
Kasama ... ..	251	32.5
Mongu ... ..	363	83.21
Ndola ... ..	1,002	76.8
Mazabuka ... ..	782	50.0
Lusaka ... ..	792	53
Fort Rosebery ... ..	297	27
Balovale ... ..	244	20

6. Statistics relating to sickness are shown below :

Prison	Daily average in Prison	Daily average Sick	Admitted to Hospital	Deaths
Livingstone ... ..	211.6	11.4	87	3
Broken Hill ... ..	211	24.3	120	4
Fort Jameson ... ..	47.47	1.73	25	2*
Kasama ... ..	32.5	1.2	14	—
Mongu ... ..	83.21	6	135	4
Ndola ... ..	76.8	3.8	65	—
Mazabuka ... ..	50	9.0	124	—
Lusaka ... ..	53	5.0	52	—
Fort Rosebery ... ..	27	.8	11	—
Balovale ... ..	20	.15	15	2

\* Executions.

7. No asylum exists. The system followed is that cases of insanity are admitted to the local prisons and later removed to a central one if circumstances demand this course. The more violent cases are sent to Ingutsheni in Southern Rhodesia. It cannot be said that this arrangement is a very satisfactory one as the environment of a gaol is not conducive to the proper treatment of these cases. The provision of a mental hospital is indicated when the country is able to afford it.

8. During the year 66 new cases of lunacy were dealt with and with 8 cases remaining from 1932, the total number was 74. Thirteen of these were transferred to Ingutsheni.

## SECTION VIII.

## METEOROLOGY.

The following meteorological data have been supplied by the officer in charge :

ZAMBESI VALLEY, 1933.

Month.	Station : Balovale.			Station : Mongu.		
	Mean.		Monthly Mean.	Mean.		Monthly Mean.
	Max.	Min.		Max.	Min.	
January ...	81.7	62.5	72.1	85.0	65.4	75.2
February ...	81.3	62.2	71.7	87.4	66.1	76.7
March ...	85.1	62.5	73.8	91.1	65.0	78.1
April ...	87.7	59.1	73.4	90.6	62.8	76.7
May ...	82.6	50.9	66.7	85.5	53.0	69.3
June ...	82.7	48.7	65.7	84.5	53.7	69.1
July ...	86.2	45.7	65.9	—	—	—
August ...	91.8	50.1	70.9	88.2	54.6	71.4
September ...	100.6	57.5	79.1	93.7	61.4	77.5
October ...	100.7	61.7	81.2	99.1	59.7	79.4
November ...	87.8	61.7	74.7	—	—	—
December ...	83.2	61.6	72.4	—	—	—



Month.	Station : Mwinilunga.			Station : Kalabo.		
	Mean.		Monthly Mean.	Mean.		Monthly Mean.
	Max.	Min.		Max.	Min.	
January ...	78.1	63.2	70.7	91.6	66.0	78.8
February ...	77.7	63.1	70.4	94.7	66.3	80.5
March ...	79.9	61.8	70.9	98.9	64.4	81.7
April ...	82.8	58.9	70.9	97.1	59.6	78.3
May ...	80.9	48.9	64.9	89.9	48.0	68.9
June ...	81.5	47.6	64.5	87.9	44.5	66.2
July ...	81.5	45.9	63.7	88.6	44.3	66.5
August ...	82.9	46.5	64.7	94.2	46.6	70.4
September ...	88.8	55.5	72.1	101.1	55.4	78.3
October ...	90.6	58.4	74.5	105.6	62.4	84.0
November ...	84.2	59.5	71.9	96.5	66.7	81.6
December ...	79.9	60.6	70.3	92.7	65.9	79.3

Month.	Station : Mankoya.			Station : Sesheke.		
	Mean.		Monthly Mean.	Mean.		Monthly Mean.
	Max.	Min.		Max.	Min.	
January ...	84.7	66.6	75.7	84.9	63.8	74.3
February ...	88.1	66.0	77.1	91.0	60.5	75.7
March ...	90.1	63.0	76.5	92.7	59.5	76.1
April ...	90.4	59.2	74.8	89.5	53.5	71.5
May ...	86.3	49.1	67.7	82.4	39.8	61.1
June ...	83.8	47.4	65.6	80.9	37.6	59.3
July ...	84.2	45.1	64.7	81.8	37.5	59.7
August ...	88.1	48.3	68.2	85.8	41.5	63.7
September ...	94.6	61.3	77.9	92.4	49.5	70.9
October ...	100.1	64.6	82.3	100.6	56.4	78.5
November ...	88.8	66.0	77.4	87.7	62.7	75.2
December ...	81.8	65.0	73.4	84.5	61.2	72.9

## PLATEAU STATIONS, 1933.

Month.	Kasama Boma.			Mpika Aerodrome.		
	Mean.		Monthly Mean.	Mean.		Monthly Mean.
	Max.	Min.		Max.	Min.	
January ...	81.0	63.2	72.1	76.6	61.3	68.9
February ...	79.8	61.9	70.9	76.4	60.1	68.3
March ...	79.8	62.2	71.1	77.3	60.0	68.7
April ...	76.8	59.1	67.9	75.5	57.4	66.5
May ...	77.0	55.2	66.1	73.4	51.0	62.2
June ...	76.6	56.1	66.3	73.9	46.7	60.3
July ...	76.0	53.3	64.7	71.2	44.9	58.1
August ...	77.9	52.4	65.1	74.1	47.4	60.7
September ...	81.0	56.6	68.8	78.5	55.4	66.5
October ...	87.1	59.5	73.3	85.1	57.5	71.3
November ...	88.3	62.7	75.5	87.0	62.3	74.7
December ...	79.7	61.0	70.3	76.8	60.1	68.5

Month.	Station Serenje.			Station Chinsali.		
	Mean.		Monthly Mean.	Mean.		Monthly Mean.
	Max.	Min.		Max.	Min.	
January ...	77.5	63.8	71.7	79.7	62.9	71.3
February ...	76.1	62.4	69.3	78.0	61.1	69.5
March ...	77.9	62.6	70.3	79.5	61.8	70.7
April ...	76.2	59.6	67.9	77.4	59.3	68.3
May ...	70.4	53.0	61.7	78.2	53.0	65.6
June ...	70.5	51.9	61.2	77.7	52.5	65.1
July ...	68.2	49.1	58.7	74.5	50.1	62.3
August ...	71.5	51.0	61.3	76.8	53.7	65.3
September ...	75.8	54.9	65.3	81.7	56.1	68.9
October ...	82.7	62.1	72.4	88.0	58.9	73.5
November ...	83.9	63.3	73.1	89.0	61.3	75.1
December ...	72.5	61.4	66.9	76.6	60.8	68.7

## LIVINGSTONE OBSERVATORY.

Month.	Mean Max.	Mean Min.	Mean $\frac{1}{2}$ (M+m)	R'fall ins.	Humi- dity. $\frac{1}{2}$ (8+14)	Dir. Force. 8 h.		Dir. Force 14 h.	
January ...	83.8	65.2	74.5	7.81	71	82	1.1	117	1.3
February ...	87.2	63.7	75.5	1.77	61	83	1.1	96	1.6
March ...	91.3	63.7	77.6	—	51	67	1.1	73	1.9
April ...	88.2	60.1	74.1	—	58	97	1.0	90	1.9
May ...	81.8	50.9	66.3	—	42	100	0.8	112	1.7
June ...	79.2	48.2	63.6	—	47	80	0.8	95	2.1
July ...	79.3	47.9	63.6	—	49	90	0.6	99	2.2
August ...	82.4	50.6	66.5	—	42	90	1.0	92	2.3
September ...	88.2	57.6	72.9	—	38	90	1.7	108	2.7
October ...	96.6	66.3	81.5	0.04	27	127	2.1	90	3.3
November ...	88.1	66.8	77.5	4.42	55	74	2.0	29	2.6
December ...	84.2	64.2	74.2	3.30	65	85	1.5	95	1.8

## SECTION IX.

## SCIENTIFIC.

It has not yet been found possible to establish a Government laboratory in the Territory, but a private one exists at Broken Hill and others are maintained by the mining companies at Nkana and Luanshya. Most of the Government work calling for skilled bacteriological and chemical knowledge is referred either to Bulawayo or Johannesburg and this system has proved satisfactory in practice owing to the frequency and speed of communications. Doubtless it would be preferable to have a laboratory as an integral part of the Health Department, but in view of the facts just stated and the urgency of extending medical services amongst the native population in outlying districts, its establishment can be deferred until the country can really afford it.

2. Well-trained native microscopists are employed at the main hospital centres along the railway line, and have proved themselves capable of doing useful and accurate work. Thus at Livingstone during the year 3,696 specimens (blood, sputum, faeces and urine) were examined with the following results :

Malaria parasites found in 313 specimens.  
 Ankylostome ova found in 315 specimens.  
 Bilharzia ova found in 39 specimens.  
 Microfilaria found in 38 specimens.  
 Tubercle bacilli found in 6 specimens.  
 Spirilla (Relapsing Fever) found in 5 specimens.  
 Amoeba histolytica found in 4 specimens.  
 Taenia parasites found in 7 specimens.

3. During the year Dr. Humphrey A. Gilkes published two articles through the medium of the Royal Society of Tropical Medicine and Hygiene entitled :

“Two little-known Diseases of Northern Rhodesia : Onyalai and Chiufa,” and  
 “Native Customs in Africa and the Medical Officer.”

LIVINGSTONE,  
 25th June, 1934.

A. KINGHORN,  
 Director of Medical Services.



RETURNS.

ADMINISTRATION.

TABLE I.

(a) Staff (as at 31st December, 1933).

*European.*

Director of Medical Services...	...	...	...	...	1
Specialist Surgical Officer ...	...	...	...	...	1
Medical Officers ...	...	...	...	...	16
Pharmacist and Storekeeper...	...	...	...	...	1
Pharmacist ...	...	...	...	...	1
Clerk Dispenser ...	...	...	...	...	1
Accountant ...	...	...	...	...	1
Clerks ...	...	...	...	...	4
Nursing Sisters ...	...	...	...	...	31
Attendants : Female Wards	...	...	...	...	2
Health Inspectors ...	...	...	...	...	3
Subsidised Dental Surgeons ...	...	...	...	...	5

*African.*

Native Clerks ...	...	...	...	...	8
Orderlies ...	...	...	...	...	104
Other Servants ...	...	...	...	...	135
Native Porters ...	...	...	...	...	13
Office Boys ...	...	...	...	...	3
Sleeping Sickness Guards ...	...	...	...	...	1
Vaccinators ...	...	...	...	...	3
Labourers ...	...	...	...	...	20
Sanitary Overseers ...	...	...	...	...	3
Malaria Control Boys...	...	...	...	...	28
					—
					318
					==

TABLE V.

## RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1933.

## ALL EUROPEAN HOSPITALS.

Diseases						Remain- ing end 1932	Yearly Total		Total cases Treated	Remain- ing end 1933
							Adms.	Deaths		
<b>I. Epidemic, Endemic and Infectious Diseases.</b>										
1a.	Typhoid	...	...	...	...	1	7	2	8	...
b.	Paratyphoid	...	...	...	...	...	3	...	3	3
3.	Relapsing Fever	...	...	...	...	...	2	...	2	...
4.	Undulant Fever	...	...	...	...	...	1	...	1	...
5c.	Malaria Aestivo Autumnal	...	...	...	...	2	343	...	345	4
e.	Blackwater	...	...	...	...	...	14	2	14	...
9.	Whooping Cough	...	...	...	...	1	...	...	1	...
11.	Influenza	...	...	...	...	...	3	...	3	...
15.	Epidemic Diarrhoea	...	...	...	...	...	2	1	2	...
16a.	Dysentery, Amoebic	...	...	...	...	...	22	...	22	...
b.	Dysentery, Bacillary	...	...	...	...	...	6	...	6	...
c.	Dysentery, Undefined	...	...	...	...	...	6	...	6	...
20.	Leprosy	...	...	...	...	...	1	...	1	...
22.	Anterior Poliomyelitis	...	...	...	...	...	1	...	1	1
24.	Cerebro-spinal Meningitis	...	...	...	...	1	3	2	4	...
25h.	Trypanosomiasis	...	...	...	...	...	1	...	1	...
31.	Tuberculosis, Pulmonary	...	...	...	...	2	7	1	9	2
36b.	Tuberculosis, Hip	...	...	...	...	...	1	...	1	...
40.	Gonorrhoea	...	...	...	...	...	2	1	2	...
41.	Septicaemia	...	...	...	...	...	2	...	2	...
<b>II. General Diseases not mentioned above.</b>										
44.	Carcinoma of Stomach	...	...	...	...	...	1	1	1	...
45.	Cancer of Rectum	...	...	...	...	...	1	...	1	...
46.	Cancer Undefined	...	...	...	...	...	2	...	2	...
50.	Tumours, non-malignant	...	...	...	...	...	6	...	6	...
51.	Acute Rheumatism	...	...	...	...	...	4	...	4	...
52.	Chronic Rheumatism	...	...	...	...	...	5	...	5	1
57.	Diabetes	...	...	...	...	2	1	...	3	...
58b.	Anaemia	...	...	...	...	...	5	...	5	...
64.	Splenitis	...	...	...	...	...	2	...	2	...
66.	Alcoholism	...	...	...	...	...	1	...	1	...
<b>III. Affections of the Nervous System and Organs of the Senses.</b>										
75a.	Hemiplegia	...	...	...	...	...	1	1	1	...
b.	Spastic Paraplegia	...	...	...	...	1	...	...	1	...
c.	Cerebral Thrombosis	...	...	...	...	...	1	1	1	...
78.	Epilepsy	...	...	...	...	1	4	...	5	...
82a.	Hysteria	...	...	...	...	...	1	...	1	...
b.	Neuritis	...	...	...	...	...	2	...	2	...
b.	Sciatica	...	...	...	...	...	3	...	3	...
c.	Neurasthenia	...	...	...	...	...	9	...	9	1
85b.	Conjunctivitis	...	...	...	...	...	2	...	2	...
e.	Other affections of the Eye	...	...	...	...	...	16	...	16	1
86.	Other affections of the Ear	...	...	...	...	...	4	...	4	...
<b>IV. Affections of the Circulatory System.</b>										
89.	Angina Pectoris	...	...	...	...	1	2	...	3	...
90.	Valvular Disease of the Heart	...	...	...	...	...	5	2	5	...
a.	Other diseases of the Heart	...	...	...	...	...	3	1	3	...
b.	Myocarditis	...	...	...	...	...	4	1	4	...
b.	Endocarditis	...	...	...	...	...	2	1	2	...
91a.	Aneurism	...	...	...	...	...	1	...	1	...
92.	Thrombosis of Femoral Vein	...	...	...	...	...	1	...	1	...
93.	Haemorrhoids	...	...	...	...	...	4	...	4	1
	Phlebitis	...	...	...	...	...	5	...	5	...
94.	Lymphangitis	...	...	...	...	1	1	...	2	...
95.	Haemorrhage of undetermined cause	...	...	...	...	...	2	...	2	...
96.	Tochycardia	...	...	...	...	...	1	...	1	...
	Haematoma	...	...	...	...	...	2	...	2	...
<i>Carried forward</i> ...						13	531	17	544	14



TABLE V.—*continued.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1933.  
ALL EUROPEAN HOSPITALS.

Diseases						Remain- ing end 1931	Yearly Total		Total cases Treated	Remain- ing end 1932
							Adms.	Deaths		
<i>Brought forward</i> ...						13	531	17	544	14
<b>V. Affections of the Respiratory System.</b>										
97.	Rhinitis	...	...	...	...	...	1	...	1	...
	Adenoids	...	...	...	...	...	8	...	8	...
99a.	Bronchitis, Acute	...	...	...	...	...	8	...	8	...
b.	Bronchitis, Chronic	...	...	...	...	2	2	...	4	...
100.	Pneumonia, Broncho	...	...	...	...	...	2	1	2	...
101a.	Pneumonia, Lobar	...	...	...	...	...	1	...	1	...
b.	Pneumonia, Unclassified	...	...	...	...	...	6	1	6	1
102.	Pleurisy	...	...	...	...	...	6	...	6	...
	Empyema...	...	...	...	...	...	5	...	5	...
105.	Asthma	...	...	...	...	...	5	...	5	3
107.	Silicosis	...	...	...	...	...	1	...	1	...
<b>VI. Diseases of the Digestive System.</b>										
108.	Edentulation	...	...	...	...	...	73	...	73	...
	Pyorrhoea	...	...	...	...	...	1	...	1	...
109.	Tonsillitis	...	...	...	...	...	25	1	25	...
	Vicents Angina	...	...	...	...	...	1	...	1	...
111a.	Ulcer of the Stomach	...	...	...	...	...	1	...	1	...
b.	Ulcer of the Duodenum	...	...	...	...	1	5	...	6	...
112.	Gastritis	...	...	...	...	...	12	...	12	...
	Colic	...	...	...	...	...	2	...	2	...
113.	Enteritis under 2 years	...	...	...	...	...	4	1	4	...
114.	Enteritis over 2 years	...	...	...	...	...	17	...	17	...
	Colitis	...	...	...	...	1	4	...	5	...
116.	Hookworm	...	...	...	...	...	1	...	1	...
a.	Taenia Solium	...	...	...	...	...	1	...	1	...
117.	Appendicitis	...	...	...	...	...	59	...	59	4
118.	Hernia	...	...	...	...	...	8	...	8	...
119a.	Fistula	...	...	...	...	...	1	...	1	...
b.	Constipation	...	...	...	...	...	6	...	6	...
	Intussusception	...	...	...	...	...	1	...	1	...
	Visceroptosis	...	...	...	...	...	1	...	1	...
123.	Biliary Calculus	...	...	...	...	...	7	...	7	1
124.	Cholecystitis	...	...	...	...	...	2	...	2	...
	Jaundice	...	...	...	...	...	2	...	2	...
	Hepatitis	...	...	...	...	...	1	...	1	...
127.	Diverticulitis	...	...	...	...	...	2	1	2	...
	Haematemesis	...	...	...	...	...	1	...	1	...
<b>VII. Diseases of the Genito-Urinary System (Non-Venereal).</b>										
128.	Nephritis, Acute	...	...	...	...	...	3	1	3	...
	Nephritis, Chronic	...	...	...	...	2	2	2	4	...
129.	Circumcision	...	...	...	...	...	3	...	3	...
130b.	Bilharzia	...	...	...	...	...	1	...	1	...
131.	Pyelitis	...	...	...	...	...	13	...	13	...
132.	Urinary Calculus	...	...	...	...	...	2	...	2	...
133.	Cystitis	...	...	...	...	1	4	...	5	...
	Intestinal Fistula	...	...	...	...	...	1	...	1	...
	Cholecystitis	...	...	...	...	...	1	...	1	...
134b.	Other diseases of the Urethra	...	...	...	...	...	2	...	2	...
135.	Fibrous Prostate	...	...	...	...	...	1	...	1	...
136.	Adhering Prepuce	...	...	...	...	...	1	...	1	...
	Hydrocele	...	...	...	...	...	1	...	1	...
	Vaginitis	...	...	...	...	1	4	...	5	...
137.	Oophoritis	...	...	...	...	...	1	...	1	...
138.	Salpingitis	...	...	...	...	1	...	...	1	...
139.	Uterine Tumours	...	...	...	...	...	3	...	3	...
<i>Carried forward</i> ...						22	857	25	879	23

TABLE V.—*continued.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1933.  
ALL EUROPEAN HOSPITALS.

Diseases						Remain- ing end 1932	Yearly Total		Total cases Treated	Remain- ing end 1933
							Adms.	Deaths		
<i>Brought forward</i> ...						22	857	25	879	23
<b>VII. Disease of the Genito-Urinary—(continued).</b>										
140.	Menorrhagia	...	...	...	...	...	3	...	3	...
141a.	Cervicitis	...	...	...	...	...	2	...	2	...
	Endometritis	...	...	...	...	...	6	...	6	...
b.	Dysmenorrhoea	...	...	...	...	...	23	...	23	...
	Other affections of the Female Genital Organs					...	21	...	21	...
142.	Mastitis	...	...	...	...	...	2	...	2	...
<b>VIII. Puerperal State.</b>										
143a.	Normal Labour	...	...	...	...	5	151	...	156	...
b.	Abortion	...	...	...	...	...	23	...	23	...
c.	Hyperemesis Gravidarum	...	...	...	...	...	2	...	2	...
d.	Other accidents of pregnancy	...	...	...	...	...	5	...	5	...
146.	Puerperal Haemorrhage...	...	...	...	...	...	1	...	1	...
150.	Suppression of Milk	...	...	...	...	...	1	...	1	...
<b>IX. Affections of the Skin and Cellular Tissues.</b>										
152.	Boils	...	...	...	...	1	6	...	7	...
	Carbuncle	...	...	...	...	...	8	...	8	...
153.	Abscess	...	...	...	...	...	18	...	18	...
	Whitlow	...	...	...	...	...	1	...	1	...
	Cellulitis	...	...	...	...	1	19	...	20	...
154.	Naevus	...	...	...	...	...	1	...	1	...
155.	Staphylococcal Dermatitis	...	...	...	...	...	1	...	1	...
	Ulcers	...	...	...	...	...	6	...	6	...
	Papilloma of Scalp	...	...	...	...	...	1	...	1	...
	Herpes	...	...	...	...	...	3	...	3	...
	Ingrowing Toe Nail	...	...	...	...	...	2	...	2	...
	Other Diseases of the Skin	...	...	...	...	...	3	...	3	...
<b>X. Diseases of the Bones and Organs of Locomotion (other than Tuberculous).</b>										
156.	Osteomyelitis	...	...	...	...	...	2	1	2	...
157.	Synovitis	...	...	...	...	...	6	...	6	...
158.	Exostosis	...	...	...	...	...	1	...	1	...
	Rheumatic Fever	...	...	...	...	...	1	...	1	...
159.	Hammer Toe	...	...	...	...	...	1	...	1	...
<b>XII. Diseases of Infancy.</b>										
160.	Congenital Debility	...	...	...	...	...	1	1	1	...
162.	Other affections of Infancy	...	...	...	...	1	43	...	44	...
163.	Marasmus...	...	...	...	...	...	1	...	1	...
<b>XIII. Affections of Old Age.</b>										
164.	Senile Dementia	...	...	...	...	...	2	...	2	2
<b>XIV. Affections produced by External Causes.</b>										
165.	Poisoning-Quinine	...	...	...	...	...	1	1	1	...
166.	Corrosive Poisoning	...	...	...	...	...	2	...	2	...
176.	Insect Bite	...	...	...	...	...	1	...	1	...
176.	Snake Bite	...	...	...	...	...	1	...	1	...
177.	Poisoning	...	...	...	...	...	2	1	2	...
<i>Carried forward</i> ...						30	1,231	29	1,261	25



TABLE V.—*continued.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1933.  
ALL EUROPEAN HOSPITALS.

Diseases	Remain- ing end 1932	Yearly Total		Total cases Treated	Remain- ing end 1933
		Adms.	Deaths		
<i>Brought forward ... ..</i>	30	1,231	29	1,261	25
<b>XIV. Affections Produced by External Causes.</b>					
<i>continued.</i>					
179. X-Ray Burn ... ..	...	1	...	1	...
183. Wounds by Firearms ... ..	...	2	1	2	1
185. Wounds by Fall ... ..	...	7	...	7	...
188. Wounds by Railway ... ..	...	1	...	1	...
189. Injuries inflicted by Animals, Bites, etc.	...	3	...	3	...
194. Heat Stroke ... ..	...	1	...	1	...
201a. Dislocations ... ..	...	5	...	5	...
b. Sprains ... ..	...	13	...	13	...
c. Fractures ... ..	1	16	...	17	...
202. Other external injuries ... ..	2	16	...	18	...
<b>XV. Ill-defined Diseases.</b>					
205. Asthenia ... ..	...	2	...	2	...
Observation ... ..	...	18	...	18	...
<i>Total ... ..</i>	53	1,316	30	1,349	26

TABLE Va.

## RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1933.

## ALL NATIVE HOSPITALS.

Diseases						Remain- ing end 1932	Yearly Total		Total cases treated	Remain- ing end 1933
							Adms.	Deaths		
I. Epidemic, Endemic and Infectious Diseases.										
1a.	Typhoid	...	...	...	...	...	36	9	36	3
3.	Relapsing Fever	...	...	...	...	...	26	1	26	3
5c.	Malaria	...	...	...	...	12	814	12	826	37
e.	Blackwater	...	...	...	...	...	2	1	2	...
6.	Smallpox	...	...	...	...	1	8	...	9	...
7.	Measles	...	...	...	...	1	3	...	4	...
9.	Whooping Cough	...	...	...	...	...	6	...	6	...
11.	Influenza	...	...	...	...	9	361	29	370	7
13.	Mumps	...	...	...	...	...	13	...	13	...
15.	Diarrhoea	...	...	...	...	...	12	...	12	...
16a.	Dysentery, Amoebic	...	...	...	...	...	25	4	25	2
b.	Dysentery, Bacillary	...	...	...	...	...	32	3	32	...
c.	Dysentery, Unclassified	...	...	...	...	...	24	1	24	1
20.	Leprosy	...	...	...	...	55	114	4	169	42
22.	Acute Poliomyelitis	...	...	...	...	...	3	...	3	...
24.	Cerebro-spinal Meningitis	...	...	...	...	...	4	2	4	...
25b.	Varicella	...	...	...	...	4	99	...	103	1
f.	Dropsy	...	...	...	...	...	1	...	1	...
g.	Yaws	...	...	...	...	13	410	1	423	22
h.	Trypanosomiasis	...	...	...	...	...	7	2	7	2
27.	Anthrax	...	...	...	...	...	1	1	1	...
28.	Rabies	...	...	...	...	...	7	...	7	1
29.	Tetanus	...	...	...	...	...	1	...	1	...
31.	Tuberculosis, Pulmonary	...	...	...	...	12	44	21	56	3
32.	Tuberculosis Miliary	...	...	...	...	...	1	...	1	...
34.	Tuberculosis of Meninges	...	...	...	...	...	1	1	1	...
35.	Tuberculosis of Bones	...	...	...	...	...	2	...	2	1
36c.	Tuberculosis of Lymphatic System	...	...	...	...	1	1	1	2	...
37.	Tuberculosis of Acute Disseminated	...	...	...	...	...	2	2	2	...
38a.	Syphilis, Primary	...	...	...	...	26	868	...	894	64
b.	Syphilis, Secondary	...	...	...	...	116	503	2	619	24
c.	Syphilis, Tertiary	...	...	...	...	4	3	...	7	...
d.	Syphilis, Hereditary	...	...	...	...	...	38	5	38	...
e.	Syphilis, Undefined	...	...	...	...	28	409	5	437	62
39.	Soft Chancre	...	...	...	...	2	18	...	20	...
40.	Gonorrhoea	...	...	...	...	9	232	1	241	8
41.	Septicaemia	...	...	...	...	...	9	9	9	...
II. General Diseases not mentioned above.										
44.	Carcinoma of Liver	...	...	...	...	...	2	2	2	...
48.	Sarcoma	...	...	...	...	1	3	...	4	1
49.	Cancer Malignant Tumours	...	...	...	...	...	3	1	3	1
50.	Tumours Non-malignant	...	...	...	...	...	20	...	20	...
52.	Rheumatism	...	...	...	...	1	128	1	129	6
53.	Scurvy	...	...	...	...	22	49	1	71	9
54.	Pellagra	...	...	...	...	...	6	1	6	3
56.	Rickets	...	...	...	...	...	1	...	1	...
58.	Anaemia	...	...	...	...	5	3	...	8	...
59.	Hypopituitarism	...	...	...	...	...	1	...	1	...
60b.	Thyro-adenoma	...	...	...	...	...	1	...	1	...
64.	Splenic Abscess	...	...	...	...	...	1	1	1	...
66.	Alcoholism	...	...	...	...	...	2	...	2	...
69.	Onyalai	...	...	...	...	...	2	1	2	...
III. Affections of the Nervous System and Organs of the Senses.										
71.	Pneumococcal Meningitis	...	...	...	...	...	1	1	1	...
74.	Apoplexy	...	...	...	...	...	1	...	1	...
a.	Central Haemorrhage	...	...	...	...	1	...	...	1	...
Carried forward						323	4,364	126	4,687	303



TABLE Va.—*continued.*

## RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1933.

## ALL NATIVE HOSPITALS.

Diseases	Remain- ing end 1932	Yearly Total		Total cases treated	Remain- ing end 1933
		Adms.	Deaths		
<i>Brought forward</i> ...	323	4,364	126	4,687	303
<b>III. Affections of the Nervous System and Organs of the Senses—<i>continued.</i></b>					
75. Paralysis ... ..	...	2	...	2	...
a. Hemiplegia ... ..	...	21	1	21	5
77. Mental Alienation ... ..	2	40	2	42	2
78. Epilepsy ... ..	1	34	2	35	...
80. Infantile Convulsions ... ..	...	2	2	2	...
82b. Neuritis ... ..	2	...	...	2	...
85a. Diseases of the Eye ... ..	...	8	...	8	1
b. Conjunctivitis ... ..	14	320	...	334	9
c. Other affections of the Eye ... ..	3	27	...	30	2
86. Otitis Media ... ..	1	22	...	23	2
<b>IV. Affections of the Circulatory System.</b>					
87. Pericarditis ... ..	...	1	1	1	...
88. Endocarditis ... ..	...	3	1	3	...
90a. Valvular Disease of the Heart ... ..	...	5	2	5	...
b. Myocarditis ... ..	...	12	6	12	...
93. Haemorrhoids ... ..	...	3	...	3	...
Varicose Veins ... ..	...	5	...	5	...
Phlebitis ... ..	...	1	...	1	...
94. Lymphadenitis ... ..	1	13	1	14	...
95. Epistaxis ... ..	...	7	...	7	...
<b>V. Affections of the Respiratory System.</b>					
97. Rhinitis ... ..	...	1	...	1	...
98. Laryngitis... ..	...	6	1	6	...
99a. Bronchitis, Acute ... ..	3	52	...	55	2
b. Bronchitis, Chronic ... ..	1	32	3	33	1
100. Pneumonia, Broncho ... ..	1	10	4	11	...
101. Pneumonia, Lobar ... ..	3	43	13	46	1
b. Pneumonia, Unclassified ... ..	2	144	58	146	5
102. Pleurisy ... ..	...	15	1	15	1
Empyema ... ..	...	3	1	3	...
105. Asthma ... ..	...	4	...	4	...
107. Asphyxia ... ..	...	1	...	1	...
<b>VI. Diseases of the Digestive System.</b>					
108a. Dental Caries ... ..	...	3	...	3	...
Pyorrhoea... ..	...	4	...	4	...
Glossitis ... ..	...	1	...	1	...
109. Tonsillitis ... ..	...	9	...	9	...
111a. Gastric Ulcer ... ..	...	1	1	1	...
112. Dyspepsia... ..	...	6	...	6	...
c. Gastritis ... ..	...	5	...	5	...
113. Enteritis under 2 years ... ..	...	9	1	9	...
Enteritis, 2 years and over ... ..	4	37	1	41	...
114. Colitis ... ..	1	27	1	28	...
115. Ankylostomiasis ... ..	8	82	1	90	4
116a. Cestoda ... ..	...	10	...	10	...
117. Appendicitis ... ..	...	2	...	2	...
118. Hernia ... ..	...	25	1	25	2
119a. Fistula ... ..	...	2	...	2	...
b. Constipation ... ..	...	20	...	20	...
Obstruction ... ..	...	6	...	6	...
122b. Cirrhosis of Liver ... ..	1	7	5	8	...
124. Jaundice ... ..	...	1	...	1	...
Colic ... ..	...	3	...	3	...
126. Peritonitis ... ..	...	5	5	5	...
128. Nephritis, Acute ... ..	...	5	...	5	...
129. Nephritis, Chronic ... ..	1	14	4	15	...
<i>Carried forward</i> ... ..	372	5,485	245	5,857	340

TABLE Va.—continued.

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1933.  
ALL NATIVE HOSPITALS.

Diseases						Remain- ing end 1932	Yearly Total		Total cases treated	Remain- ing end 1933
							Adms.	Deaths		
<i>Brought forward</i> ...						372	5,485	245	5,857	340
<b>VII. Diseases of the Genito-Urinary System (Non-Venereal).</b>										
130b.	Schistosomiasis	...	...	...	...	1	67	...	68	4
c.	Bilharzia	...	...	...	...	1	12	1	13	2
131.	Uraemia	...	...	...	...	...	1	1	1	...
133.	Cystitis	...	...	...	...	...	4	...	4	...
134.	Fistula, Urethral...	...	...	...	...	...	3	...	3	...
136.	Orchitis	...	...	...	...	2	2	...	4	...
	Hydrocele...	...	...	...	...	...	7	...	7	1
	Cyst of Penis	...	...	...	...	...	1	...	1	1
139.	Uterine Fibroid	...	...	...	...	...	2	...	2	...
141a.	Metritis	...	...	...	...	...	3	...	3	...
b.	Endometritis	...	...	...	...	...	5	...	5	1
c.	Inversion of Uterus	...	...	...	...	...	1	...	1	...
142.	Mastitis	...	...	...	...	...	2	...	2	...
	Mammary Abscess	...	...	...	...	...	3	...	3	...
<b>VIII. Puerperal State.</b>										
143a.	Normal Labour	...	...	...	...	...	42	...	42	...
b.	(a) Abortion	...	...	...	...	...	8	...	8	...
	(b) Accidents of Pregnancy	...	...	...	...	...	4	2	4	...
	(c) Retained Placenta	...	...	...	...	...	3	...	3	...
145.	Other accidents of Parturition	...	...	...	...	...	5	3	5	...
146.	Puerperal Septicaemia	...	...	...	...	2	1	1	3	...
<b>IX. Affections of the Skin.</b>										
151.	Gangrene	...	...	...	...	...	5	2	5	1
152.	Boils	...	...	...	...	...	19	...	19	...
153.	Abscess	...	...	...	...	11	203	6	214	12
	Whitlow	...	...	...	...	1	5	...	6	...
	Cellulitis	...	...	...	...	18	179	5	197	14
154b.	Scabies	...	...	...	...	...	55	...	55	1
155.	Itch	...	...	...	...	1	2	...	3	...
	Chigoes	...	...	...	...	...	30	...	30	...
	Tropical Ulcers	...	...	...	...	44	297	...	341	36
	Ulcers	...	...	...	...	4	48	...	52	5
	Herpes	...	...	...	...	...	1	...	1	...
	Ainhum	...	...	...	...	...	1	...	1	...
	Dermatitis	...	...	...	...	1	3	...	4	...
	Elephantiasis	...	...	...	...	3	20	...	23	1
	Impetigo	...	...	...	...	...	5	...	5	1
	Other Diseases of the Skin	...	...	...	...	...	60	1	60	5
<b>X. Diseases of the Bones and Organs of Locomotion (other than Tuberculous).</b>										
156.	Osteitis	...	...	...	...	2	4	...	6	1
	Osteomyelitis	...	...	...	...	1	11	...	12	1
157.	Synovitis	...	...	...	...	2	12	...	14	...
	Arthritis	...	...	...	...	...	19	...	19	1
158.	Tropical Myositis	...	...	...	...	5	13	...	18	1
	Rheumatism	...	...	...	...	...	5	...	5	...
159.	Malformation	...	...	...	...	...	1	...	1	...
<b>XII. Diseases of Infancy.</b>										
160.	Congenital Debility	...	...	...	...	...	18	13	18	...
161.	Premature Birth	...	...	...	...	...	4	2	4	...
162.	Infantile Diarrhoea	...	...	...	...	...	1	...	1	...
	Marasmus	...	...	...	...	...	4	1	4	...
<i>Carried forward</i> ...						471	6,686	283	7,157	429



TABLE Va.—continued.

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1933.  
ALL NATIVE HOSPITALS.

Diseases	Remain- ing end 1932	Yearly Total		Total cases treated	Remain- ing end 1933
		Adms.	Deaths		
<i>Brought forward</i> ...	471	6,686	283	7,157	429
<b>XIII. Affections of Old Age.</b>					
164. Senility ... ..	...	1	1	1	...
<b>XIV. Affections produced by External Causes.</b>					
165. Suicide by Poisoning ... ..	...	4	4	4	...
167. Suicide by Gas ... ..	...	1	1	1	...
171. Suicide by Attempted ... ..	...	4	...	4	...
175. Food Poisoning ... ..	...	1	...	1	...
176. Snake Bite ... ..	11	34	1	45	2
Insect Bites ... ..	3	1	...	4	...
177. Poisoning Fungus ... ..	...	1	...	1	...
178. Burns ... ..	23	138	15	161	8
179. Burns other than by fire ... ..	...	2	...	2	...
183. Wounds by firearms ... ..	2	7	...	9	...
Wounds by cutting or stabbing instru- ments ... ..	9	111	2	120	47
185. Wounds by fall ... ..	14	94	...	108	3
186. Wounds by machinery ... ..	...	45	1	45	3
188. Wounds by crushing or railway accidents	6	...	...	6	...
189. Injuries inflicted, animal bites, etc. ...	4	39	1	43	3
201a. Dislocation ... ..	1	2	...	3	...
b. Sprain ... ..	...	24	...	24	1
c. Fracture ... ..	11	67	4	78	6
202. Other external injuries ... ..	16	456	...	472	4
Violence (Unknown Cause) ... ..	...	3	3	3	...
<b>XV. Ill-defined Diseases.</b>					
205a. Ascites ... ..	...	1	1	1	...
Asthenia ... ..	...	11	5	11	2
Unclassified ... ..	3	...	...	3	...
b. Malingering ... ..	...	14	...	14	...
Observation cases ... ..	...	36	...	36	...
Periostitis... ..	...	1	...	1	...
Filariasis ... ..	...	1	...	1	...
Splenic Abscess ... ..	...	2	2	2	...
<b>XVI. Diseases, the total of which have not caused 10 deaths ... ..</b>					
<i>Total</i> ... ..	574	7,802	325	8,376	508

## APPENDIX.

## RHODESIA BROKEN HILL DEVELOPMENT COMPANY, LTD.

DAILY AVERAGE NATIVES EMPLOYED THE YEAR : 1,384 (Including Contractors' Labour).

Diseases	Cases Treated	Deaths	Mortality Cases Per Cent	Sickness Incidence Rate Per Mille Employed	Death Rate Per Mille Employed
Malaria ... ..	11	...	...	7.94	...
Relapsing Fever ... ..	2	...	...	1.44	...
Varicella ... ..	9	...	...	6.50	...
Diarrhoea ... ..	4	...	...	2.89	...
Bacillary Desentary ... ..	2	...	...	1.44	...
Broncho Pneumonia—Surface ... ..	16	10	62.5	11.65	7.22
Lobar Pneumonia—Surface ... ..	3	...	...	2.16	...
Influenza ... ..	67	...	...	48.41	...
Pleurisy ... ..	2	1	50.0	1.44	.72
Syphilis ... ..	14	...	...	10.11	...
Gonorrhoea... ..	2	...	...	1.44	...
Accidents arising out of employment ... ..	206	...	...	206.64	...
Minor Ailments ... ..	57	...	...	41.18	...
Diseases of the Eye ... ..	12	...	...	8.67	...
Ulcerated Colon ... ..	1	1	100.0	.72	.72
Tropical Ulcers ... ..	3	...	...	2.16	...
Iritis ... ..	16	...	...	11.65	...
Abscess ... ..	35	...	...	25.28	...
Acid Sores ... ..	6	...	...	4.33	...
Febrositis ... ..	1	...	...	.72	...
Cirrhosis of Liver ... ..	1	...	...	.72	...
Heart Failure ... ..	1	1	100.0	.72	.72
Poisoning ... ..	1	...	...	.72	...
Myositis ... ..	1	...	...	.72	...
<i>Total</i> ... ..	473	13	2.74	341.76	9.39



## NKANA MINE.

DAILY AVERAGE NATIVES EMPLOYED DURING THE YEAR : 4,138 (Including Contractors' Labour)

Diseases	Cases Treated	Deaths	Mortality Cases Per Cent	Sickness Incidence Rate Per Mille Employed	Death Rate Per Mille Employed
Malaria ... ..	44	...	...	10.89	...
Cerebro-spinal Meningitis...	2	1	50.0	.48	.24
Typhoid ... ..	1	...	...	.24	...
Scurvy ... ..	1	...	...	.24	...
Varicella ... ..	43	...	...	10.64	...
Diarrhoea ... ..	5	...	...	1.23	...
Ankylostomiasis ... ..	7	...	...	1.73	...
Amoebiasis ... ..	6	...	...	1.48	...
Broncho-pneumonia, Surface ...	2	1	50.0	.48	.24
Broncho-pneumonia, Underground ...	1	...	...	.24	...
Lobar-pneumonia, Surface ...	57	6	10.52	14.11	1.48
Lobar-pneumonia, Underground ...	200	32	16.0	49.50	7.92
Influenzal-pneumonia, Surface ...	22	...	...	5.45	...
Influenzal-pneumonia, Underground ...	37	2	5.40	9.15	.48
Influenza ... ..	141	...	...	34.90	...
Pleurisy ... ..	7	...	...	1.73	...
Syphilis ... ..	29	...	...	7.17	...
Gonorrhoea ... ..	6	...	...	1.48	...
Accidents :					...
(a) Arising out of employment ...	1,481	22	1.48	366.58	5.44
(b) Not arising out of employment ...	230	...	...	56.93	...
Minor Ailments ... ..	212	...	...	52.47	...
Diseases of the Eye ... ..	71	...	...	17.57	...
Phthisis ... ..	2	...	...	.48	...
Other diseases of the Chest ... ..	66	...	...	16.34	...
Influenzal Meningitis ... ..	1	...	...	.24	...
Other Diseases ... ..	47	...	...	11.63	...
Mental ... ..	1	...	...	.24	...
Diseases of Heart and Blood Vessels ...	1	1	100.0	.24	.24
Pneumococcal Meningitis... ..	1	1	100.0	.24	.24
Leprosy ... ..	1	...	...	.24	...
Yaws ... ..	1	...	...	.24	...
<i>Total</i> ...	2,726	66	2.42	674.75	16.34

## MUFULIRA COPPER MINE.

DAILY AVERAGE NATIVES EMPLOYED DURING THE YEAR : 325 (Including Contractors' Labour).

Diseases	Cases Treated	Deaths	Mortality Cases Per Cent	Sickness Incidence Rate Per Mille Employed	Death Rate Per Mille Employed
Malaria ... ..	15	...	...	46.15	...
Blackwater... ..	3	...	...	9.23	...
Varicella ... ..	3	...	...	9.23	...
Diarrhoea ... ..	3	...	...	9.23	...
Ankylostomiasis ... ..	1	...	...	3.07	...
Broncho pneumonia, Surface ... ..	7	1	14.43	21.53	3.07
Broncho-pneumonia, Underground ... ..	4	...	...	12.30	...
Lobar-pneumonia, Surface ... ..	3	1	33.3	9.23	3.07
Lobar-pneumonia, Underground ... ..	2	1	50.0	6.15	3.07
Influenza ... ..	4	...	...	12.30	...
Pleurisy ... ..	1	...	...	3.07	...
Syphilis ... ..	2	...	...	6.15	...
Accidents :					
(a) Arising out of Employment ... ..	62	1	1.61	190.76	3.07
(b) Not arising out of Employment ... ..	55	...	...	169.23	...
Minor Ailments ... ..	28	...	...	76.92	...
Diseases of the Eye ... ..	7	...	...	21.53	...
Homicide ... ..	1	1	100.0	3.07	3.07
Bronchitis ... ..	3	...	...	9.23	...
Yaws ... ..	1	...	...	3.07	...
Tropical Ulcer ... ..	1	...	...	3.07	...
<i>Total</i> ... ..	206	5	2.42	633.84	15.38



## ROAN ANTELOPE COPPER MINES Ltd..

DAILY AVERAGE OF NATIVES EMPLOYED DURING THE YEAR: 3,147 (Including Contractors' Labour).

Diseases	Cases Treated	Deaths	Mortality Cases Per Cent	Sickness Incidence Rate Per Mille Employed	Death Rate Per Mille Employed
Malaria ... ..	45	...	...	14.55	...
Acute Poleomyelitis ... ..	1	...	...	.32	...
Typhoid ... ..	2	1	50.0	.64	.32
Relapsing Fever ... ..	2	...	...	.64	...
Varicella ... ..	118	...	...	38.17	...
Diarrhoea ... ..	17	...	...	5.49	...
Amoebiasis ... ..	1	...	...	.32	...
Bacillary Dysentery ... ..	3	...	...	.96	...
Pulmonary Tuberculosis ... ..	1	...	...	.32	...
Broncho-pneumonia, Surface ... ..	4	...	...	1.30	...
Broncho-pneumonia, Underground ... ..	65	9	13.84	21.03	2.74
Lobar-pneumonia, Surface ... ..	3	...	...	.96	...
Lobar-pneumonia, Underground ... ..	13	...	...	4.21	...
Influenzal-pneumonia, Underground ... ..	1	...	...	.32	...
Influenza ... ..	61	...	...	16.49	...
Pleurisy ... ..	19	...	...	6.14	...
Syphilis ... ..	39	...	...	12.61	...
Gonorrhoea ... ..	15	...	...	4.85	...
Yaws ... ..	2	...	...	.64	...
Accidents :					
(a) Arising out of Employment ... ..	628	12	1.27	203.17	3.88
(b) Not arising out of Employment ... ..	197	...	...	63.73	...
Minor Ailments ... ..	511	...	...	165.31	...
Diseases of the Eye ... ..	58	...	...	18.76	...
Septic Wounds ... ..	84	...	...	27.17	...
Suicide ... ..	1	1	100.0	.32	.32
Inguinal Hernia ... ..	3	...	...	.96	...
Ruptured Spleen ... ..	1	1	100.0	.32	.32
General Peritonitis ... ..	1	1	100.0	.32	.32
Tumour of Colon ... ..	1	1	100.0	.32	.32
Relapsing Tick Fever ... ..	1	...	...	.32	...
Nephritis ... ..	3	2	66.6	.96	.64
Leprosy ... ..	1	...	...	.32	...
Morbilli ... ..	1	...	...	.32	...
Acute Pericarditis... ..	1	1	100.0	.32	.32
Acute Appendicitis ... ..	1	...	...	.32	...
Phthisis ... ..	1	1	100.0	.32	.32
<i>Total</i> ... ..	1,906	30	1.57	616.59	9.73

## EUROPEAN HEALTH STATISTICS.

## COPPER BELT, 1933.

Mines	Daily average employed in 1933	Total No. of cases Treated	Total Deaths	Mortality %
Broken Hill Development Co., Ltd.	153	379	2	0.52
Roan Antelope ... ..	474	282	3	1.06
Nkana ... ..	589	453	7	1.54
Mufulira ... ..	55	48	—	—

PROPORTION OF MARRIED NATIVES TO TOTAL NATIVES EMPLOYED DURING 1933.

Mines	Average Monthly Natives Employed	Percentage of Married Labourers
Broken Hill Development Company, Ltd.	1,384	46*
Roan Antelope ... ..	3,147	52
Mufulira ... ..	325	32
Nkana ... ..	4,138	28

\* Estimated figure.